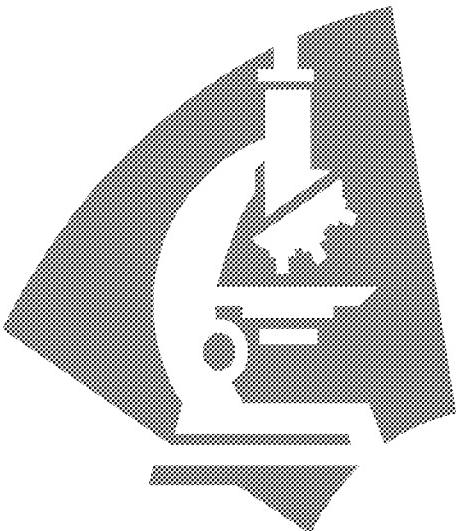


MANUAL OF LABORATORY TESTS AND SERVICES



**MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH
BUREAU OF LABORATORY SCIENCES
WILLIAM A. HINTON STATE LABORATORY INSTITUTE
BOSTON, MASSACHUSETTS**

Our Mission....

The Bureau of Laboratory Sciences provides timely, accurate testing for disease surveillance, investigation and prevention.

Our Vision....

The Bureau of Laboratory Sciences will be a nationally recognized leader in the delivery of public health laboratory core functions to protect and promote the public's health.

Third Edition (May 2007)

MANUAL OF LABORATORY TESTS AND SERVICES

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SECTION 2

Introduction

Our commitment to you.

The Massachusetts State Laboratory Institute's (SLI) *Manual of Laboratory Tests and Services (MLTS)* describes our services and how to use them.

Within the Massachusetts Department of Public Health (MDPH) is the Bureau of Laboratory Sciences (BLS) which is co-located with the Bureau of Communicable Disease Control (BCDC) at the State Laboratory Institute provides comprehensive public health laboratory services for diagnosis, surveillance, investigation and prevention. These services address public health priorities in Massachusetts and complement local and regional laboratory activities. Core functions listed below are an essential public health capacity and provide direct benefits to the health of our citizens. They are as follows:

- Diagnostic testing
- Reference testing
- Laboratory-based surveillance
- Identification of the causes of outbreaks
- Assurance of food safety
- Health studies
- Partnership with the U.S. Centers for Disease Control and Prevention (CDC), and the National Laboratory Response Network (LRN)
- Regional early warning surveillance center for biological and chemical terrorism, food protection, antimicrobial resistance, and emerging infectious diseases
- Training in laboratory methods
- Audiovisual training materials for laboratories
- Consultation for laboratory test interpretation and use

SLI collaborates with local, state and federal agencies and the private sector to support disease prevention and management across all areas of public health, including family and child health, infectious and environmental disease prevention, quality assurance and control, substance abuse, food safety and occupational health.

Our primary responsibility is to serve public health, healthcare and medical professionals by providing timely and accurate laboratory analysis, data and interpretation to support policy, planning and disease prevention, and support for actions that promote health and preserve wellness.

We are committed to quality improvement and encourage communication to inform us of how we are doing in meeting your needs. The *MLTS* provides details of services and contact information to aid communication with our staff. We want to hear from you.

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Overview of the Manual:

The State Laboratory Institute's (SLI) Manual of Laboratory Tests and Services (MLTS), 3rd Edition, contains a complete listing of tests performed at the State Laboratory Institute. The manual describes how to collect quality samples for testing and properly package them to ensure safe transport to the laboratory.

Section 1 contains listings and contact numbers for programs, specific laboratories, and emergency preparedness contacts for biological, chemical or radiological response.

Section 2 is a listing of reportable diseases. This list serves as a reminder to report diseases/ medical conditions to the appropriate agency within a specified time.

Section 3 is testing services provided listed alphabetically. Each test entry contains information pertaining to the collection, submission and analysis of samples. The entries reflect current testing capabilities and provide information for Sample, Sample and Volume, Sample Container, Sample Test Kit, Shipping Requirements and Special Instructions.

Section 4 is an alphabetized index of tests which lists all tests performed along with the corresponding page numbers.

Section 5 has information regarding specimen outfits (kits), and specimen submission forms. Information is provided to avoid problems associated with sample collection and submission. A listing of specimen outfits and supplies available for shipping specimens to the SLI, and information on how to order the kits is included.

Section 6 provides a summary of information regarding packaging and shipping various categories of specimens and infectious substances, and includes references for the various agencies whose regulations are to be followed when shipping specimens to or from the State Laboratory Institute. All Massachusetts laboratories are expected to comply with the latest packaging and shipping regulations. Section 6 is intended to provide general information and guidance regarding packaging and shipping of Division 6.2 Infectious Substance Materials. It is not a comprehensive list of all regulations. Consult the United States Department of Transportation (USDOT), International Air Transport Association (IATA) and United States Postal Service (USPS) regulations for current policies and procedures. It is the goal of these regulators to streamline and harmonize regulations for packaging to facilitate expeditious transport of laboratory specimens.

We welcome your feedback about the MLTS. This manual can be found at the Bureau of Laboratory Sciences website, www.mass.gov Search: manual lab. The manual will be updated in its electronic version.

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State Laboratory Institute - Laboratory Programs and Sections

Laboratory Programs and Sections:	Phone Number:
Analytical Chemistry Division	
Chemical Terrorism Response	617-983-6653
Childhood Lead Screening	617-983-6665
Drug Analysis, Amherst	413-545-2601
Drug Analysis, Boston (Jamaica Plain)	617-983-6622
Environmental Chemistry	617-983-6657
Laboratory Response and Communications Division	
Bioterrorism Response Lab	(24/7) 617-590-6394
Laboratory Response Network (LRN) Coordinator	617-983-6296
Responsible Official, Select Agent Program	617-983-6656
Specimen Packaging and Shipping Coordinator/ Information Coordinator, Laboratory Preparedness	617-983-6216
State Laboratory Training Coordinator	617-983-6608
Agents of Bioterrorism Course	617-983-6626
Laboratory Response to Chemical Terrorism Course	617-983-6939
Management and Client Services Division	
Central Laboratory Services Supervisor	617-983-6205
Media Preparation	617-983-6642
Specimen Kits and Glassware	617-983-6644
Specimen Receiving	617-983-6639
Microbiology Division	
Administration/ Specimen Kit orders	617-983-6600
Bacterial Surveillance Laboratory	617-983-6612
Pulsed Field Gel Electrophoresis (PFGE)	
Dairy/ Milk Bacteriology	617-983-6616
Enteric Bacteriology	617-983-6609
Food Bacteriology	617-983-6610
HIV/Hepatitis	617-983-6389
Mycobacteriology (TB)	617-983-6374
Parasitology	617-983-6610/6661
Pertussis Serology	617-983-6614
Sexually Transmitted Diseases (STD)	617-983-6605/6606
Reference Bacteriology	617-983-6607
Syphilis Serology	617-983-6614

State Laboratory Institute - Laboratory Programs and Sections

Laboratory Programs and Sections:	Phone Number:
Molecular Diagnostics and Virology Division	
Arbovirus Field Program Manager	617-983-4364
Arbovirus Surveillance	617-983-6792
Molecular Diagnostics	617-983-6391
Rabies	617-983-6385
Virus Isolation	617-983-6853/6382
Virus Serology	617-983-6396
Quality Assurance and Information Technology	
Information Technology Director	617-983-6601
Quality Assurance Program Manager	617-983-6243
Safety Officers- Laboratory	617-983-6966/ 6601
Radiation Control Laboratory	617-983-6879

IMPORTANT NOTICE:

**The 24/7 Emergency Telephone Number for
Bureau of Communicable Disease Control, Division of Epidemiology and Immunization is
617-983-6800**

Call this number to report disease outbreaks, including food-borne outbreaks, cases of emerging infectious disease, exposures to select agents or toxins or other questions regarding infectious disease emergency situations.

COMMUNICABLE AND OTHER INFECTIOUS DISEASES REPORTABLE IN MASSACHUSETTS BY HEALTHCARE PROVIDERS *

***The list of reportable diseases is not limited to those designated below. This list includes *only* those, which are primarily reportable by clinical providers. MDPH and local boards of health may require reports of additional diseases and information from time to time.**

A full list of reportable diseases in Massachusetts is detailed in 105 CMR 300.100.

REPORT IMMEDIATELY BY PHONE

This includes both suspect and confirmed cases.

All cases should be reported to your local Board of Health.

If unavailable, call the Massachusetts Department of Public Health:

Telephone: 617-983-6800 Confidential Fax: 617-983-6813

- Any Case of an Unusual Illness thought to have public health implications
- Any Cluster/Outbreak of Illness (including, but not limited to foodborne illness)
- Anthrax
- Botulism
- Brucellosis
- Diphtheria
- Encephalitis, any case
- *Haemophilus influenzae*, invasive
- Hemolytic uremic syndrome (also report directly to MDPH: 617-983-6800)
- Hepatitis A (IgM+ only)
- Measles
- Meningitis, bacterial, community acquired
- Meningococcal disease, invasive (*N. meningitidis*)
- Plague
- Polio
- Rabies in humans
- Rubella
- Severe Acute Respiratory Syndrome (SARS)
- Smallpox
- Tetanus
- Tularemia
- Viral hemorrhagic fevers

Animal bites should be reported **immediately** to the designated local authority.

REPORT PROMPTLY (WITHIN 1-2 BUSINESS DAYS)

This includes both suspect and confirmed cases.

All cases should be reported to your local Board of Health;

If unavailable, call the Massachusetts Department of Public Health:

Telephone: 617-983-6800 Confidential Fax: 617-983-6813

- Creutzfeldt-Jakob disease
- Ehrlichiosis
- Food poisoning and toxicity (includes poisoning by ciguatera, scombrotoxin, mushroom toxin, tetrodotoxin, paralytic shellfish and amnesic shellfish)
- Glanders
- Infection with Group A streptococcus (from blood, CSF, or other normally sterile body fluid)
- Guillain Barré syndrome
- Hansen's disease (leprosy)
- Hantavirus infection
- HBsAg+ pregnant women
- Leptospirosis
- Lyme disease
- Melioidosis
- Meningitis, viral (aseptic), and other infectious (non-bacterial)
- Monkeypox and infection with any other orthopox virus
- Mumps
- Pertussis (Whooping Cough)
- Psittacosis
- Q Fever
- Reye syndrome
- Rheumatic fever
- Rickettsialpox
- Rocky Mountain spotted fever
- Toxic shock syndrome
- Trichinosis
- Typhoid fever
- Varicella (chickenpox)

Report the Following Directly to the Massachusetts Department of Public Health:

- HIV infection and AIDS 617-983-6560
- Sexually Transmitted Diseases 617-983-6940

Chancroid

Chlamydial infections (genital)

Genital Warts

Gonorrhea

Granuloma inguinale

Herpes, neonatal (onset within 30 days after birth)

Lymphogranuloma venereum

Ophthalmia neonatorum:

a. Gonococcal

b. Other agents

Pelvic Inflammatory disease

a. Gonococcal

b. Other agents

Syphilis

- Tuberculosis suspect and confirmed cases: Report within 24 hours to 617-983-6801 or
Toll Free 1-888-MASS-MTB (627-7682) or
Confidential Fax 617-983-6813
- Latent tuberculosis infection: Confidential Fax 617-983-6220 or
Mail report to:
Massachusetts Department of Public Health
Office of Integrated Surveillance and Informatics
305 South Street, Jamaica Plain, MA 02130

Reportable Diseases Primarily Ascertained Through Laboratory Reporting of Evidence of Infection

Please work with the laboratories you utilize for diagnostic testing to assure complete reporting.

- Amebiasis
- Babesiosis
- Calicivirus infection
- Campylobacteriosis
- Cholera
- Cryptococcosis
- Cryptosporidiosis
- Cyclosporiasis
- Dengue fever virus
- Eastern equine encephalitis virus
- *E. coli* O157:H7
- Enteroviruses (from CSF)
- Giardiasis
- Group A streptococcus, invasive infection
- Hepatitis B
- Hepatitis C
- Hepatitis – infectious, not otherwise specified
- Evidence of human prion disease
- Influenza
- Legionellosis
- Listeriosis
- Malaria
- Salmonellosis
- Shiga toxin-producing organisms
- Shigellosis
- *Streptococcus pneumoniae*, invasive infection
- Toxoplasmosis
- Typhus
- West Nile virus
- Yellow fever virus
- Yersiniosis

EVIDENCE OF INFECTION REPORTABLE IN MASSACHUSETTS TO THE MDPH BY ALL CLINICAL LABORATORIES*

*Evidence of infection includes results from culture methods, specific antigen or genomic tests, histology, other microscopy, and clinically relevant serologic tests. Infection in Massachusetts' residents, ascertained out-of-state, should also be reported.

REPORT IMMEDIATELY BY PHONE TO THE MA DEPARTMENT OF PUBLIC HEALTH

This includes both suspect and confirmed cases.

Telephone: 617-983-6800 and ask for the Epidemiologist On-Call

- *Bacillus anthracis*
- *Brucella* sp.
- *Clostridium botulinum*
- *Clostridium tetani*
- *Corynebacterium diphtheriae*
- *Francisella tularensis*
- *Haemophilus influenzae* (from blood, CSF or other normally sterile body fluid)
- Hemorrhagic fever viruses (including Ebola, Marburg and other filoviruses, arenaviruses, bunyaviruses and flaviviruses)
- Hepatitis A virus (IgM+ only)
- Measles virus (IgM+ only)
- *Neisseria meningitidis* (from blood, CSF or other normally sterile body fluid)
- Poliovirus
- Rubella virus (IgM+ only)
- SARS-associated coronavirus
- Vaccinia Virus
- Variola virus
- *Yersinia pestis*

REPORTABLE WITHIN 24 HOURS

Telephone: 617-983-6800 Confidential Fax: 617-983-6813

(Note: arrangements for reporting via fax or electronic data transfer can be made)

- *Babesia* sp.
- *Bordetella pertussis*
- *Borrelia burgdorferi*
- *Burkholderia mallei* and *pseudomallei*
- Caliciviruses
- *Campylobacter* sp.
- *Chlamydia psittaci*
- *Clostridium perfringens*
- *Coxiella burnetii*
- *Cryptococcus neoformans* (from CSF, blood or other normally sterile body fluid)
- *Cryptosporidium parvum*
- *Cyclospora cayetanensis*
- Dengue fever virus
- Eastern equine encephalitis virus
- *Ehrlichia* sp.
- *Entamoeba histolytica*
- Enteroviruses (from CSF)
- *Escherichia coli* O157:H7, other Shiga-toxin producing *E. coli*, and other *E. coli*, if found in CSF
- *Giardia lamblia*
- Group A streptococcus (from blood, CSF or other normally sterile body fluid)
- Group B streptococcus (from blood, CSF or other normally sterile body fluid)
- Hantavirus
- Hepatitis B virus (HBsAg+, IgM Anti-HBc+)
- Hepatitis C virus (EIA+, RIBA+ or PCR+)
- Human prion disease (evidence of)
- Influenza virus (culture, rapid test)
- *Legionella* sp.
- *Leptospira* sp.
- *Listeria* sp.
- Monkeypox and evidence of infection with any other orthopox virus
- Mumps virus (IgM+ only)
- *Mycobacterium leprae*
- *Mycobacterium tuberculosis*, *M. africanum*, *M. bovis*
- *Plasmodium falciparum*, *P. malariae*, *P. ovale*, *P. vivax*
- *Rickettsia akari*, *R. prowazkii*, *R. rickettsii*
- *Salmonella* sp. (non typhi)

- *Salmonella typhi*
- **Shiga-toxin+ organisms**
- *Shigella* sp.
- *Staphylococcus aureus* enterotoxin producing organisms
- *Streptococcus pneumoniae* (from blood, CSF or other normally sterile body fluid)
- *Toxoplasma gondii*, *Toxoplasma* sp.
- *Trichinella spiralis*
- **Varicella virus (DFA+, viral culture or PCR+)**
- *Vibrio* sp.
- **West Nile virus**
- **Yellow fever virus**
- *Yersinia* sp.

AIDS (CD4 counts below 200/ml): Call 617-983-6560

Sexually transmitted infections: 617-983-6940

- *Chlamydia trachomatis* (ophthalmic, genital and neonatal infections, lymphogranuloma venereum)
- *Calymmatobacterium (Donovania) granulomatis*
- *Haemophilus ducreyi*
- **Herpes simplex virus, neonatal infection (onset within 30 days after birth)**
- **Human papilloma virus**
- *Neisseria gonorrhoeae*
- *Treponema pallidum*

MDPH may request additional laboratory results indicative of an infectious disease be reported from time to time. These may include evidence of infection with methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin -resistant *Staphylococcus aureus*, and vancomycin-resistant *enterococci* (VRE).

MDPH, its authorized agents and local boards of health have the authority to collect pertinent information as part of epidemiological investigations (M.G.L. c. 111, s. 6.)

COMMUNICABLE AND OTHER INFECTIOUS DISEASES REPORTABLE IN MASSACHUSETTS TO LOCAL BOARDS OF HEALTH

Note: If these diseases are initially reported to MDPH, local boards of health will be notified.

**INITIATE INVESTIGATION IMMEDIATELY FOR BOTH
SUSPECT AND CONFIRMED CASES AND NOTIFY MDPH BY PHONE**

Telephone: 617-983-6800

Confidential Fax: 617-983-6813

- Any Case of an Unusual Illness
- Any Cluster/Outbreak of Illness, including but not limited to foodborne illness
- Anthrax (*Bacillus anthracis*)
- Botulism (*Clostridium botulinum*)
- Brucellosis (*Brucella*)
- Diphtheria (*Corynebacterium diphtheriae*)
- *Haemophilus influenzae*, invasive
- Hemolytic uremic syndrome
- Hepatitis A virus (IgM+ only)
- Measles
- Meningitis, bacterial, community acquired
- Meningococcal disease, invasive (*Neisseria meningitidis*)
- Plague (*Yersinia pestis*)
- Polio
- Rabies in humans
- Rubella
- Severe acute respiratory syndrome (SARS)
- Smallpox
- Tetanus (*Clostridium tetani*)
- Tularemia (*Francisella tularensis*)
- Viral hemorrhagic fevers

Important Note: During outbreaks, MDPH and local boards of health may request that other diseases be reportable immediately.

INITIATE INVESTIGATION AND COMPLETE CASE REPORT AS SOON AS POSSIBLE.

(This may include both suspect and confirmed cases.)

Telephone: 617-983-6800

Confidential Fax: 617-983-6813

- Amebiasis (*Entamoeba histolytica*)
- Babesiosis (*Babesia microti*)
- Calicivirus infection
- Campylobacteriosis (*Campylobacter*)
- Cholera (*Vibrio*)
- Creutzfeldt-Jakob Disease
- Cryptococcosis (*Cryptococcus neoformans* from CSF or other normally sterile body fluid)
- Cryptosporidiosis (*Cryptosporidium parvum*)
- Cyclospora (*Cyclospora cayetanensis*)
- Dengue
- Eastern equine encephalitis virus
- Ehrlichiosis (*Ehrlichia canis*, *E. chaffeensis*, *E. equi*, *E. phagocytophila*)
- Encephalitis, any cause
- Enterovirus infection (CSF)
- Infection due to Escherichia coli O157:H7, other Shiga-toxin producing E. coli
- Food poisoning and toxicity (includes poisoning by ciguatera, scombrotoxin, mushroom toxin, tetrodotoxin, paralytic shellfish and amnesic shellfish)
- Giardiasis (*Giardia lamblia*)
- Glanders (*Burkholderia mallei*)
- Guillain Barré syndrome
- Infection with Group A streptococcus (from blood, CSF or other normally sterile body fluid)
- Infection with Group B streptococcus (from blood, CSF or other normally sterile body fluid)
- Hansen's disease (leprosy)
- Hantavirus infection
- Hepatitis B
- Hepatitis C
- Hepatitis – infectious, not otherwise specified
- Human prion disease (evidence of)
- Influenza (culture and rapid test)
- Legionellosis (*Legionella*)
- Leptospirosis (*Leptospira*)
- Listeriosis (*Listeria*)
- Lyme disease (*Borrelia burgdorferi*)
- Malaria (*Plasmodium falciparum*, *P. malariae*, *P. vivax*, *P. ovale*)
- Melioidosis (*Burkholderia pseudomallei*)
- Meningitis, viral (aseptic), other
- Monkeypox and infection with any other orthopox virus
- Mumps virus
- Pertussis (*Bordetella pertussis*)
- Psittacosis (*Chlamydia psittaci*)
- Q Fever (*Coxiella burnetii*)
- Reye syndrome
- Rheumatic fever
- Rickettsialpox (*Rickettsia akari*)
- Rocky Mountain spotted fever (*Rickettsia rickettsii*)
- Salmonellosis (*Salmonella* sp., non *typhi*)
- Shigellosis (*Shigella*)
- Infection with Shiga-toxin+ organisms
- Infection with *Streptococcus pneumoniae* (from blood, CSF or other normally sterile body fluid)
- Toxic shock syndrome
- Toxoplasmosis (*Toxoplasma gondii*)
- Trichinosis (*Trichinella spiralis*)
- Typhoid Fever (*Salmonella typhi*)
- Typhus (*Rickettsia prowazekii*)
- Varicella virus (chickenpox)
- West Nile virus infection
- Yellow fever virus
- Yersiniosis (*Yersinia enterocolitica*, *Y. pseudotuberculosis*)

Reference: 105 CMR 300.000 Reportable Diseases, Surveillance, and Isolation and Quarantine Requirements, February 2004

Website: www.mass.gov/dph/cdc/surveillance/reporting_and_surveillance.htm

OTHER DISEASES AND INJURIES REPORTABLE IN MASSACHUSETTS BY ALL HEALTHCARE PROVIDERS AND LABORATORIES

Mandatory Statewide Reporting Requirement For Blood Lead Results:

REPORTABLE WITHIN 36 HOURS

Pediatric Blood Lead - Report all pediatric blood lead levels of 25 ug/dl or greater within three days of testing to the Childhood Lead Screening Laboratory at:
Telephone: 617- 983-6668 Confidential Fax: 617-983-6677
(Note: arrangements for reporting via fax or electronic data transfer can be made, by calling 617-983-6668)

REPORTABLE WITHIN 7 DAYS

Pediatric Blood Lead - Report all pediatric blood lead levels of less than 25 ug/dl within seven days of testing to the Childhood Lead Screening Laboratory at:
Telephone: 617-983-6668 Confidential Fax: 617- 983-6677
(Note: arrangements for reporting via fax or electronic data transfer can be made, by calling 617-983-6668)

REPORTABLE WITHIN ONE WEEK

Adult Lead Poisoning - Report all adult blood lead results of 15 ug/dl or greater within one week to the Lead Registry, Division of Occupational Safety at: 617-969-7177

Work Related Diseases and Injuries:

The following work-related diseases and injuries are reportable to the Massachusetts Department of Public Health.
For information on reporting, contact the Occupational Health Surveillance Program at 617-624-563.

- **Occupational lung Disease**
 - Asbestosis
 - Silicosis
 - Beryllium Disease
 - Chemical Pneumonitis
 - Asthma caused by or aggravated by workplace exposures
- **Work-related Heavy Metal Absorption**
 - Mercury (blood > 15ug/l; urine > 35 ug/grams creatinine)
 - Cadmium (blood > 5ug/l; urine > 5 ug/grams creatinine)
- **Work –related Acute Chemical Poisoning**
 - Carbon Monoxide
 - Pesticide
 - Other
- **Work-related Carpal Tunnel Syndrome**
- **Work-related injury to a person less than 18 years of age**

Any cluster of work-related conditions, regardless of whether or not they are on the reportable list, shall be immediately reported by telephone or other electronic means to the MDPH, Occupational Health Surveillance Program at 617-624-5632

SECTION 3- LABORATORY TESTING SERVICES:

Test Name:	<u>Acid Fast Bacilli (AFB)</u> See Mycobacteriology (TB) Smear and Culture (AFB).
Test Name:	<u>Adenovirus Culture</u>
Lab and Phone #:	Virus Isolation Laboratory 617-983-6853/ 6382
Limitations:	Asymptomatic shedding of adenoviruses frequently occurs in stool and throat.
Availability:	As requested.
Turnaround Time:	2 to 10 days.
Sample:	Eye swab, throat and/or nasopharyngeal swab (combined specimen preferred), stool, urine, cerebrospinal fluid, and tissue.
Form Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08.
Sample Collection:	Call the laboratory for collection instructions.
Sample Test Kit:	Respiratory Virus Kit. Call 617-983-6800.
Shipping Requirements:	Transport to the laboratory within 24 hours at refrigerator temperature. Triple package specimens for transport by Courier Service or USPS. Mark the outer container "UN3373- Biological Substances, Category B".
Comments:	Note: Culture for additional viruses may be performed at the discretion of the laboratory. Serotyping of adenovirus isolates may be performed at CDC in outbreak situations.
Test Name:	<u>Aeromonas species</u> See Enteric Pathogens, Referred Culture.
Test Name:	<u>Alkalescens-dispar</u> (former name for E. coli O Antigen Groups 1 and 25) See Enteric Pathogens, Referred Culture.
Test Name:	<u>Amebiasis Serology</u> See CDC Serology-Bacterial/Fungal/ Protozoal. Reference Bacteriology Laboratory 617-983-6607
Test Name:	<u>Anthrax</u> See <i>Bacillus anthracis</i> Culture and PCR.
Test Name:	<u>Arbovirus Antibody IgM and IgG, Human</u>
Lab and Phone #:	Virus Serology Laboratory 617-983-6396
Use of Test:	Serodiagnosis of a recent or prior infection or vaccination with Eastern Equine Encephalitis, West Nile Virus or St. Louis Encephalitis. In the absence of symptoms and when the IgM results are negative, the IgG test results can be used as an indicator of past infection.
Test Includes:	Screening EIA IgM & IgG Assays to Eastern Equine Encephalitis and West Nile Virus with confirmatory PRNT Assay as necessary.
Significant Result:	Presence of IgM indicates recent or current infection or vaccination. IgM absent/IgG present suggests prior exposure.
Availability:	Routinely from May to October.
Turnaround Time:	3 to 7 days.
Sample and Volume:	3 mL of serum, no additives; at least 1 mL of cerebrospinal fluid (CSF) collected aseptically.
Form Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08.
Sample Test Kit:	Provided by user.
Sample Collection:	Acute serum (\geq 3mL) and CSF (\geq 1 mL) should be collected within the first 14 days following onset of symptoms and sent immediately to the State Laboratory. For samples collected before day 8 after onset of symptoms and negative by EIA test, a second serum is recommended to be drawn 10-14 days after onset of symptoms.
Shipping Requirements:	Use triple packaging system for transporting by Courier and USPS. Mark the outer packing "UN3373- Biological Substances, Category B".

Comments:	Additional tests recommended: For cases of meningitis, encephalitis, or meningoencephalitis where a patient's cerebrospinal fluid (CSF) has been submitted on ice (prefrozen ice packs) in sufficient volume and tests negative for EEE and WNV, the CSF will be tested for Enterovirus. Depending upon documented travel history, patient sample(s) may be forwarded to CDC for further Arbovirus panel testing. Note: Culture for additional viruses may be performed at the discretion of the laboratory.
Test Name:	<u>Arbovirus Culture and PCR, Human</u>
Lab and Phone #:	617-983-6853/ 6382
Test Includes:	Isolation of Eastern Equine Encephalitis Virus (EEEV) or West Nile Virus (WNV). Rapid screening by PCR for presumptive identification of EEEV or WNV will be performed on a case-by-case basis, and will be dependent on sample type and collection date.
Limitations:	Isolates presumptive positive for virus other than EEEV and WNV may be forwarded to CDC for identification.
Availability:	As requested. Testing is restricted to illness onsets between May and October unless provided with a travel history to an endemic area. Consult the laboratory from November through April.
Turnaround Time:	3 to 7 days.
Sample and Volume:	Post-mortem tissue from brain or spinal cord, or 2 mL of aseptically collected cerebrospinal fluid.
Form Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08.
Sample Test Kit:	Provided by user.
Sample Collection:	Consult laboratory for details.
Shipping Requirements:	Transport to the laboratory within 24 hours at refrigerator temperature. Use triple packaging system with prefrozen cold packs for transport by Courier Service. Mark the outer package "UN3373- Biological Substances, Category B".
Comments:	Additional tests recommended: Serology preferred (Eastern Equine Encephalitis Antibody, West Nile Virus Antibody) Note: Culture for additional viruses may be performed at the discretion of the laboratory.
Test Name:	<u>Arbovirus Culture and PCR, Other</u>
Lab and Phone #:	617-983-6853/ 6382
Test Includes:	Isolation of Eastern Equine Encephalitis Virus (EEEV) or West Nile Virus (WNV). Rapid screening by PCR for presumptive identification of EEEV or WNV will be performed on a case-by-case basis and will be dependent on sample type and collection date.
Limitations:	Isolates presumptive positive for virus other than EEEV or WNV maybe forwarded to CDC for identification.
Availability:	As requested.
Turnaround Time:	3 to 7 days.
Sample and Volume:	Varies, depending upon species. Call the laboratory for instructions.
Form Required:	State Laboratory Animal Specimen Submission Form, SS-SLI-2-07.
Sample Test Kit:	Provided by user.
Sample Collection:	Call the laboratory for instructions prior to collection.
Shipping Requirements:	Transport to the laboratory within 24 hours at refrigerator temperature. Triple package specimen and place on a prefrozen cold pack for transporting by Courier. Mark the outer container "Exempt Animal Specimen".
Comments:	Additional tests recommended: Depending upon species, serology may be preferred, (Eastern Equine Encephalitis Antibody, West Nile Virus Antibody). Note: Culture for additional viruses may be performed at the discretion of the laboratory.

Test Name: **Arbovirus PCR, Avian**

Lab and Phone #: **Molecular Diagnostics Laboratory** **Bird Hotline 866-627-7968**

Test Includes: Detects the presence of arboviral RNA from Eastern Equine Encephalitis, (EEEV) and West Nile Virus (WNV).

Limitations: Detection of related viruses is not possible.

Availability: Upon approval of Arbovirus Surveillance Program.

Turnaround Time: < 2 days.

Sample and Volume: Bird, dead, whole body, intact.

Form Required: West Nile Virus Dead Bird Reporting and Test Request Form, SS-VI-2-07.

Sample Test Kit: The form is included in the sample test kit.

Sample Collection: West Nile Virus Avian Kit.

Shipping Requirements: Instructions for collecting, packaging and shipping samples are included in the test kit. Transport to the laboratory as soon as possible at refrigerator temperature.

Use a triple packaging system with a prefrozen cold pack for transporting by courier or commercial carrier. Mark the outer package as "UN3373- Biological Substances, Category B".

Test Name: **Arbovirus PCR, Mosquito Vectors**

Lab and Phone #: **Molecular Diagnostics Laboratory** **617-983-6792**

Use of Test: Detects the presence of arboviral RNA from Eastern Equine Encephalitis (EEEV) and West Nile Virus (WNV).

Availability: Upon approval of Arbovirus Surveillance Program.

Turnaround Time: < 2 days.

Sample and Volume: Varies, depending upon species. Call the Arbovirus Field Program Manager at 617-983-6792 for information on sample types and mosquito pools.

Form: Mosquito collection form is provided to authorized submitters.

Sample Test Kit: Provided by user.

Sample Collection: Call the laboratory for instructions prior to collecting sample.

Shipping Requirements: Transport to the laboratory as soon as possible at refrigerator temperature. Use a triple packaging system for transporting by courier or commercial carrier. Use a triple packaging system with a prefrozen cold pack for transporting by courier or commercial carrier. Mark the outer package as "UN3373- Biological Substances, Category B".

Comments: Note: Culture for additional viruses may be performed at the discretion of the laboratory.

Test Name: **Arbovirus Plaque Reduction Neutralization Test –Antibody (PRNT)**

Lab and Phone #: **Virus Isolation Laboratory** **617-983-6853/ 6382**

Availability: Eastern Equine Encephalitis Virus (EEEV) or West Nile Virus (WNV) and as confirmation of EIA results.

Turnaround Time: As requested. Testing is restricted to illness onsets between May and October unless provided with a travel history to an endemic area. Consult the laboratory from November through April.

Sample and Volume: 3 to 7 days.

Form Required: 2 mL of serum; at least 1 mL of cerebrospinal fluid collected aseptically.

Sample Test Kit: State Laboratory Specimen Submission Form, SS-SLI-1-08 or

Sample Collection: State Laboratory Animal Specimen Submission Form, SS-SLI-2-07

Shipping Requirements: Provided by user.

Call the laboratory prior to sample collection for instructions.

Transport to the laboratory within 24 hours at refrigerator temperature. Use triple packaging system for transporting by Courier Service and USPS. Mark the outer container "UN3373- Biological Substances, Category B".

Comments:

Additional tests recommended: Serology (Eastern Equine Encephalitis EIA Antibody, West Nile Virus EIA Antibody).
Note: PRNT confirmation for antibody and for other arboviral agents may be performed at the discretion of the laboratory.

Test Name: *Arcobacter species*
See Enteric Pathogens, Referred Culture; Enteric Pathogens, Routine Culture.

Test Name: **Arsenic (Total), Hair** (for research purposes only).

Lab and Phone #: **Environmental Chemistry Laboratory** **617-983-6657**

Use of Test: To monitor possible toxic exposure to arsenic.

Method of Analysis: Acid digestion followed by graphite furnace atomic absorption spectroscopy.

Normal Range: Less than 0.5 µg/g.

Toxic Concentrations: Concentrations of arsenic in chronic poisoning are generally in the 1 to 5 ug/g range, but may range as high as 40 µg/g.

Turnaround Time: 10 working days.

Sample Size: 1.0 gram

Sampling Instructions: Call laboratory for sampling instructions.

Form Required: Proper documentation of provider, patient and sample.

Sample Container: Submit in a clean, zip-lock, plastic bag.

Shipping Requirements: Secure container, package, mark and label properly to avoid sample loss during delivery. Package and mark the specimens for transport as "Exempt Human Specimen".

Test Name: **Arsenic (Total), Urine** (for research purposes only).

Lab and Phone #: **Environmental Chemistry Laboratory** **617-983-6657**

Use of Test: To measure acute exposure to arsenic.

Method of Analysis: Acid extraction followed by graphite furnace atomic absorption spectroscopy.

Normal Range: 0 to 20 ug/g creatinine

Turnaround Time: 10 working days.

Sample Volume: 100 mL

Sampling Instructions: Call laboratory for sampling instructions and container.

Form Required: Proper documentation of provider, patient and sample.

Container: Trace metal-free, 8 ounce, urine specimen collection container.

Collection: First void sample or an aliquot of a 24-hour urine collection. Measure and record the volume on the required paperwork.

Shipping Requirements: Sample must be refrigerated. Sample must be submitted to the laboratory for preservation within 24 hours of collection. Secure container, package, mark and label properly to avoid sample loss and ensure safe delivery. Package and mark the specimens for transport as "Exempt Human Specimen"

Comments: All trace metal levels in urine are corrected for creatinine.

Test Name:

Aspergillosis Serology

See CDC Serology–Bacterial/Fungal/Protozoal.
Reference Bacteriology Laboratory 617-983-6607

Test Name:

Babesiosis Serology

See CDC Serology- Viral/ Other
Virus Serology Laboratory 617-983-6396

Test Name:

Bacillus anthracis Culture and PCR

Biologic Threat Laboratory 617-590-6390 (24hr/7days)

Notify the Bioterrorism Response Laboratory at the above number to report the identification, presumptive or otherwise, of this agent. Instructions for packaging and shipping the specimen as a “UN3373-Biological Substances, Category B”, or “UN2814- Infectious Substances Affecting Humans, Category A” will be reviewed over the phone prior to transfer to the SLI.

To rule out infection caused by *Bacillus anthracis*.

Subculture identification or isolation and identification of *B. anthracis* from lesions, eschars, tissue, blood, sputa, cerebral spinal fluid, etc. Rapid screening by Polymerase Chain Reaction (PCR) for presumptive identification may be performed on a case-by-case basis.

Bacillus anthracis not found. DNA for *Bacillus anthracis* not detected by PCR.

Patient does not have clinical evidence of anthrax.

Available after prior consultation with the Bioterrorism Response Laboratory.

< 1 to 5 days.

Pure subculture for identification or confirmation, primary specimen for isolation and identification, swab of lesion or eschar, tissue, tissue biopsies, blood culture or sputum.

State Laboratory Specimen Submission Form, SS-SLI-1-08.

Subculture: Pure subculture growing on a suitable slanted substrate. Use a screw-capped tube.

Primary specimen: Commercial aerobic blood culture bottle for blood, or sterile screw-capped tube collected with or without swab for all others.

Provided by user.

Aseptic collection of tissue and body fluid. Use a blood culture bottle for blood. Use a dry swab and sterile tube to collect serous fluid, biopsy, sputum etc.

Transport specimen to the laboratory within 24 hours.

For primary specimens other than blood, same day delivery is recommended. Submit the sample on coolant (prefrozen ice packs may be used). Package and mark the specimens for transport as “UN3373- Biological substances, Category B”. If same day delivery is not available priority overnight transport is recommended.

For pure subcultures or presumptive positive specimens package and mark as “ UN2814-Infectious Substances Affecting Humans, Category A”.

Test Name:

Bacillus cereus Culture, Food

See *Bacillus cereus* Plate Count, Food.

Test Name:

Test Name:**Bacillus cereus Culture, Stool**

See Enteric Pathogens, Routine Culture.

Note: Available only through local health departments in Massachusetts. Limited to outbreak situations wherein *B. cereus* has been isolated and quantified in significant numbers from related food samples.

Test Name:**Bacillus cereus Plate Count, Food**

Food Bacteriology Laboratory **617-983-6610**

To support epidemiologic evidence implicating food as a possible source of illness.

Special Instructions:

Food samples must be submitted through local or state public health agencies and implicated in an outbreak (one or more ill consumers). The laboratory should be notified by phone prior to submission. Include the source of the sample and any other pertinent information on the specimen submission form. Isolation and enumeration of *Bacillus cereus* and organoleptic examination.

Food will be examined for *B. cereus* only if the clinical and epidemiologic information is compatible with *B. cereus* foodborne disease.

Test Includes:

An interval of greater than 24 hours between consumption of suspect food and onset of symptoms is **not** indicative of illness caused by *B. cereus*.

Limitations:

Monday through Friday.

2 to 7 days.

Contraindications:

At least 100 grams is preferred but lesser amounts are acceptable.

Availability:

Food Bacteriology Specimen Submission Form, SS-FD-1-06. Forms are obtainable from the Bacteriology Food Laboratory by calling 617- 983-6610, the MA Food Protection Program at 617- 983-6712 or the local Board of Health.

Turnaround Time:

Original sample container as submitted by inspector or other sterile leak proof container.

Sample and Volume:

Collect food aseptically and place in sterile whirlpack bags or other sterile, leak proof container. Keep all samples under refrigeration except samples received frozen which should be maintained in the frozen state.

Form Required:

Transport or ship samples on ice in appropriate packagings.

Comments: **Additional tests recommended:** *Bacillus cereus* Stool Culture.

Test Name:**Bacterial Culture Identification****Lab and Phone #:**

Reference Bacteriology Laboratory **617-983-6607**

To identify an isolate for use in treatment selection and/or epidemiological studies.

Use of Test:

Identification of pure isolates determined to be of clinical significance as described in the history of the patient.

Test Includes:

Identification of obligate anaerobes not performed.

Limitations:

Monday through Friday.

Availability:

2 days to 1 month.

Turnaround Time:

Pure, actively growing culture on suitable agar slant.

Sample:

State Laboratory Specimen Submission Form, SS-SLI-1-08.

Form Required:

Use a triple packaging system for transporting by Courier Service and USPS. Mark the outer package, "UN3373-Biological substances, Category B".

Shipping Requirements:

Comments: **Additional tests recommended:** Prior laboratory work-up and submission of lab results are required.

Test Name:**Bacterial Culture Identification, Referred****Lab and Phone #:**

Reference Bacteriology Laboratory **617-983-6607**

Use of Test:

Non-enteric isolates causing reportable diseases. Definitive identification of bacteria of public health significance (see Limitations listed below).

Test Includes:

Identification of bacteria of public health significance. Enteric pathogens not included (See Enteric Pathogens, Referred Culture).

Limitations:	Isolates causing reportable diseases include the following organisms: <i>Bacillus anthracis</i> , <i>Bordetella</i> spp., <i>Brucella</i> spp., <i>Corynebacterium diphtheriae</i> , <i>Francisella tularensis</i> , <i>Haemophilus influenzae</i> , <i>Listeria monocytogenes</i> , <i>Neisseria gonorrhoeae</i> , <i>Neisseria meningitidis</i> and <i>Streptococcus pneumoniae</i> .
Availability:	Monday to Friday.
Turnaround Time:	2 days to 2 weeks.
Sample:	Pure culture on agar slant.
Forms Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08.
Shipping Requirements:	Ship at ambient temperature. Use triple packaging. Type of organism determines whether package is marked and shipped as, "UN3373- Biological Substances, Category B", or "UN2814- Infectious Substances Affecting Humans, Category A." Call Laboratory before shipping for instructions.
Comments:	Additional tests recommended: Serogrouping/Serotyping of bacteria for use in epidemiological studies. Bacterial typing (PFGE) is recommended for specimens involved in an outbreak.

Test Name: **Bacterial Culture Identification, Referred Enteric Pathogens**
See Enteric Pathogens, Referred Culture.

Test Name: **Bacterial Culture Identification, Referred Legionella**
See *Legionella* Culture.

Test Name: **Bacterial Culture Identification, Referred Mycobacteria**
See Mycobacteriology (TB) Identification (Referred Culture).

Test Name: **Bacterial Culture Identification, Referred- Serotyping (Non-enteric)**
(*N. meningitidis* *H. influenzae*, *L. pneumophila*, etc.)
Reference Bacteriology Laboratory 617-983-6607
To serotype or serogroup common pathogens for use in treatment selection and/or epidemiological studies.
Serogrouping of *Neisseria meningitidis*, *Legionella pneumophila*, and beta hemolytic *Streptococcus* spp.; serotyping of *Haemophilus influenzae*.
Only done on organisms listed above.
Lab and Phone #: Monday through Friday.
Use of Test: 1 to 3 days.
Test Includes: Pure culture on agar slant.
Limitations: State Laboratory Specimen Submission Form, SS-SLI-1-08.
Availability: Ship at ambient temperature. Triple package and ship as
Turnaround Time: "UN3373- Biological Substances, Category B".
Sample: If culture is *N. meningitidis*, print "DO NOT REFRIGERATE" on the outside of the outer packing.
Forms Required: **Additional tests recommended:** Prior correct identification of *Neisseria meningitidis* and *Haemophilus influenzae* is required.
Shipping Requirements:

Test Name:
Lab and Phone #:
Use of Test:

Bacterial Typing, Pulsed Field Gel Electrophoresis (PFGE)
Bacterial Molecular Antimicrobial Surveillance Laboratory 617-983-6612
To determine if isolates from different sources (i.e., patient and environmental isolates) have a common origin. Test is very discriminatory, and is primarily used in food related outbreaks. All confirmed isolates of enteric pathogens should be submitted to the Enteric Laboratory. (See Enteric Pathogens, Referred Culture.) Stool specimens from cases of suspected enteric infection should be submitted to the Enteric Laboratory. Enteric pathogens isolated from stool cultures will be analyzed by PFGE in outbreak associated cases. Isolates of non-enteric pathogens should be submitted to the Reference Laboratory. (See Bacterial Culture Identification, Referred Non-Enteric.) All isolates received by the PFGE Laboratory are Stored at $\leq -70^{\circ}\text{C}$. This allows for the comparison of these strains to others submitted in the future.

Test Includes:

Bacterial strain typing using restriction endonuclease (enzyme) digestion of bacterial chromosomal DNA.

Interpretation of Results:

Contact the MDPH, BCDC, Division of Epidemiology at 617-983-6800 concerning results of foodborne investigations.

Limitations:

PFGE is not a diagnostic test. Results are used in conjunction with epidemiological findings that result from intense investigation. PFGE is performed on all unique cultures of *Salmonella* sp., *E. coli* O157:H7 and *Shigella sonnei*, that have been identified by the Enteric Laboratory.

Currently, PFGE is also performed on unique cultures of *Listeria monocytogenes*. Accurate identification of all isolates must be confirmed prior to PFGE testing. Results are interpreted based on banding patterns. By special request only, Monday through Friday.

1 week for pure cultures. Turnaround time is delayed if the isolate submitted is contaminated.

Pure isolates must be received on agar slants.

State Laboratory Specimen Submission Form, SS-SLI-1-08.

Ship at ambient temperature. Triple package all samples for transport by Courier and USPS. Depending on the organism, mark the outer package, "UN3373-Biological Substances, Category B" or "UN2814- Infectious Substances, Category A".

Availability:

Turnaround Time:

Sample:

Form Required:

Shipping Requirements:

Test Name:

Bartonella Serology

See CDC Serology- Bacterial/Fungal/Protozoal.

Reference Bacteriology Laboratory 617-983-6607

Test Name:

Blastomycosis Serology

See CDC Serology–Bacterial/Fungal/Protozoal.

Reference Bacteriology Laboratory 617-983-6607

Test Name:

***Bordetella pertussis* and other *Bordetella* spp. Culture and PCR**

Reference Bacteriology Laboratory 617- 983-6607

Diagnosis and confirmation of *Bordetella pertussis*. Polymerase chain reaction (PCR) test results must be interpreted in conjunction with the patient's clinical presentation. For patients <1 years of age, culture and PCR are the most appropriate tests for diagnosis of *B. pertussis*, regardless of cough duration. For patients ≥ 11 years of age with cough duration ≤ 14 days, culture and PCR are indicated. For patients ≥ 11 years of age with cough duration > 14 days, serology is the most appropriate diagnostic test, though culture and PCR test can be considered *in addition* to serologic testing.

Isolation and identification of *B. pertussis* and other *Bordetella* species, and detection of genetic components of *B. pertussis* by PCR. PCR testing will not be done on reference isolates.

Culture positive for *B. pertussis* or other *Bordetella* species, *B. pertussis* DNA detected by PCR.

Test Includes:

Significant Result:

Limitations:	PCR and culture are most sensitive for specimens collected within the first 3 weeks after onset of cough. Beyond this period, false negative results become more likely, though PCR can detect remnants of the organism up to 4 or more weeks after onset of cough. False positive PCR results may occur due to cross-reactivity with <i>Bordetella holmesii</i> . Culture results are not reliable if an outdated kit is used, or if specimens have been improperly obtained or transported.
Availability:	Monday through Friday
Turnaround Time:	For PCR, the turnaround time is 2-3 days. For culture, turnaround time is 3-7 days. A preliminary report will be issued initially, and a final report will be issued after both tests are completed. All negative cultures will be held for an additional 5 days of incubation, and if positive, results will be reported to the provider.
Sample and Volume:	Nasopharyngeal swab.
Forms Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08.
Sample Test Kit:	SLI Pertussis Culture and PCR kit. Providers may also use commercially-prepared Regan-Lowe deeps for <i>B. pertussis</i> culture.
Sample Collection:	Collect nasopharyngeal specimen with swab, according to instructions included in the kit. Moisten swab in 1% CAS, roll over the charcoal transport slant, and then place swab in the dry tube provided. Submit slant and swab for culture and PCR testing, respectively. Instructions and all materials needed for culture and PCR are provided in the SLI Pertussis culture and PCR Kit.
Shipping Requirements:	Use triple packaging system for transporting by courier or USPS. Mark the outer packing "UN-3373- Biological Substances, Category B". Same day delivery is recommended. Overnight priority mail with coolant is acceptable if same day delivery is not possible.

Test Name:	<i>Bordetella pertussis</i> Serology
Lab and Phone #:	STD Bacteriology Laboratory 617-983-6600
Use of Test:	To determine the presence of IgG antibody to pertussis toxin, which is consistent with the presence of, or a recent infection with, <i>Bordetella pertussis</i> .
Test Includes:	Serologic, single serum, testing for the presence of IgG antibody to pertussis toxin.
Normal Range:	< 20 ug/mL IgG antibody to <i>Bordetella pertussis</i> toxin.
Limitations:	This test is not interpretable in children less than 11 years of age and in patients who receive Tdap vaccine within the preceding 3 years. In patients 11 years of age, or older, the results are most readily interpretable when the blood is drawn greater than 14 days and less than 56 days from cough onset. Results less than 20 μ g/mL may occur in individuals who have pertussis, particularly if the blood has been drawn less than 14 days after cough onset. Send only when cough duration is greater than 14 days.
Availability:	Monday through Friday.
Turnaround Time:	2 to 14 days. Repeat testing and time of year may effect how often test is performed.
Sample and Volume:	Serum (\geq 1 mL) or whole blood (5-10 mL) collected in a red top or Serum Separator Tube (SST). Serum is preferable to whole blood. Do not send both serology and culture specimen without prior laboratory approval.
Form Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08.
Sample Test Kit:	Pertussis serology specimen kit. Pertussis serology kits may be ordered by calling 617-983-6640.
Sample Collection:	Collect 5 to 10 mL of whole blood in red top tube or SST. Use 13mm x100mm, or 16mm x 100mm tubes for collection. Allow the blood to clot at least 30 minutes. Separate the serum if a centrifuge is available.
Shipping Requirements:	Serum may be shipped at ambient temperature, cold or frozen. Whole blood must be maintained at a temperature between 2°C and 27°C . Use triple packaging system for transporting by courier or USPS. Mark the outer packing "UN3373-Biological Substances, Category B".

Test Name:	Borrelia burgdorferi See Lyme Disease, Western Blot IgM and IgG.
Test Name:	Botulism Culture, Food or Stool
Lab and Phone #:	ALL BOTULISM TESTING IS REFERRED TO THE MDPH, BCDC, DIVISION OF EPIDEMIOLOGY. CALL 617- 983-6800 FOR INSTRUCTIONS. PLEASE CONTACT THE ENTERIC BACTERIOLOGY LABORATORY AT 617-983-6609 PRIOR TO SENDING SPECIMENS IN ORDER TO ALERT STAFF. INSTRUCT COURIER TO HAVE STATE LAB SPECIMEN RECEIVING OR SECURITY CALL ENTERIC LAB UPON ARRIVAL OF SPECIMEN.
Use of Test:	To support a clinical diagnosis of botulism or infant botulism.
Test Includes:	Culture for <i>Clostridium botulinum</i> . Confirmation and toxin typing by Mouse Neutralization Assay.
Limitations:	Sufficient specimen amount must be submitted.
Contraindications:	Test is performed only on patients who exhibit neurological symptoms suggestive of botulism or infant botulism, on patients who have consumed food suspected to contain botulinum toxin, or on foods highly suspected to contain botulinum toxin.
Availability:	By special request only. Monday through Friday. Weekends in emergency situations.
Turnaround Time:	Minimum 1 week.
Sample and Volume:	25 to 50 grams of stool. No preservative needed. 25 to 200 grams of implicated food samples are required for the test.
Form Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08.
Sample Container:	Sterile, leakproof container and insulated box with coolant. DO NOT FREEZE .
Shipping Requirements:	Shipment by courier as soon as possible is optimal. If necessary, ship overnight with coolant. DO NOT FREEZE. Triple package sample as an "UN3373- Biological Substances, Category B" for transport by Courier or USPS.
Comments:	Additional tests recommended: Botulism Toxin, Food or Stool and/or Botulism Toxin, Serum.
Test Name:	Botulism Culture, Referred Culture
Lab and Phone #:	ALL BOTULISM TESTING IS REFERRED TO THE MDPH, BCDC, DIVISION OF EPIDEMIOLOGY. CALL 617- 983-6800 FOR INSTRUCTIONS. PLEASE CONTACT THE ENTERIC BACTERIOLOGY LABORATORY AT 617-983-6609 PRIOR TO SENDING SPECIMENS IN ORDER TO ALERT STAFF. INSTRUCT COURIER TO HAVE STATE LAB SPECIMEN RECEIVING OR SECURITY CALL ENTERIC LAB UPON ARRIVAL OF SPECIMEN.
Use of Test:	To support a clinical diagnosis of botulism or infant botulism.
Test Includes:	Confirmation by Mouse Neutralization Assay of culture suspected to be <i>Clostridium botulinum</i> . Toxin typing on positive cultures is also performed by Mouse Neutralization Assay.
Contraindications:	Test is performed only on cultures from patients who exhibit neurological symptoms suggestive of botulism or infant botulism, on cultures from patients who have consumed food suspected to contain botulinum toxin, or on cultures isolated from food(s) implicated in suspected cases of botulism.
Availability:	By special request only, Monday through Friday. Weekends in emergency situations.
Turnaround Time:	Minimum 1 week.
Sample:	Pure culture in screw-capped tube.
Form Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08.
Sample Container:	A sterile leak-proof container.
Shipping Requirements:	Shipment by courier as soon as possible is optimal. If necessary, ship overnight with coolant. DO NOT FREEZE. Triple package samples as " UN2814-Infectious Substances Affecting Humans, Category A".
Comments:	Additional tests recommended: Botulism Culture, Food or Stool and/or Botulism Toxin, Food or Stool and/or Botulism Toxin, Serum.

Test Name:	<u>Botulism Toxin, Food or Stool</u>
Lab and Phone #:	ALL BOTULISM TESTING IS REFERRED TO THE MDPH, BCDC, DIVISION OF EPIDEMIOLOGY. CALL 617-983-6800 FOR INSTRUCTIONS. PLEASE CONTACT THE ENTERIC BACTERIOLOGY LABORATORY AT 617-983-6609 PRIOR TO SENDING SPECIMENS IN ORDER TO ALERT STAFF. INSTRUCT COURIER TO HAVE STATE LAB SPECIMEN RECEIVING OR SECURITY CALL ENTERIC LAB UPON ARRIVAL OF SPECIMEN.
Use of Test:	To support a diagnosis of botulism, infant botulism, or to rule out botulism as part of a differential diagnosis.
Test Includes:	Toxin extraction from stool or food sample and testing for <i>Clostridium botulinum</i> neurotoxins A through G by Mouse Neutralization Assay.
Limitations:	Sufficient specimen amount must be submitted.
Contraindications:	Assay performed only on patients who exhibit neurological symptoms suggestive of botulism or infant botulism, on patients who have consumed food suspected to contain botulinum toxin, or on foods that are highly suspected to contain botulinum toxin.
Availability:	By special request only. Monday through Friday. Weekends in emergency situations.
Turnaround Time:	Minimum 1 week.
Sample and Volume:	25 to 50 gm of stool, no preservatives or 25 to 200 gm of implicated food.
Form Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08.
Sample Container:	Sterile leakproof container. Insulated box with coolant- DO NOT FREEZE .
Shipping Requirements:	Shipment by courier as soon as possible is optimal. If necessary, ship overnight with coolant. DO NOT FREEZE. Triple package the sample as an "UN3373- Biological Substances, Category B", for Courier or USPS transport.
Comments:	Additional tests recommended: Botulism Culture, Stool or Food and/or Botulism Toxin, Serum.

Test Name:	<u>Botulism Toxin, Mouse Neutralization Assay</u>
	See Botulism Toxin, Food or Stool; Botulism Toxin, Serum.

Test Name:	<u>Botulism Toxin, Serum</u>
Lab and Phone #:	ALL BOTULISM TESTING IS REFERRED TO THE MDPH, BCDC, DIVISION OF EPIDEMIOLOGY. CALL 617-983-6800 FOR INSTRUCTIONS. PLEASE CONTACT THE ENTERIC BACTERIOLOGY LABORATORY AT 617-983-6609 PRIOR TO SENDING SPECIMENS IN ORDER TO ALERT STAFF. INSTRUCT COURIER TO HAVE STATE LAB SPECIMEN RECEIVING OR SECURITY CALL ENTERIC LAB UPON ARRIVAL OF SPECIMEN.
Use of Test:	To support a diagnosis of botulism or infant botulism or to rule out botulism as a part of a differential diagnosis.
Test Includes:	Testing serum for <i>Clostridium botulinum</i> neurotoxins A through G by Mouse Neutralization Assay
Limitations:	Sufficient specimen must be submitted.
Contraindications:	Assay performed only on patients who exhibit neurological symptoms suggestive of botulism or infant botulism or on patients who have consumed food suspected to contain botulinum toxin.
Availability:	By special request only, Monday through Friday. Weekends, in emergency situations.
Turnaround Time:	Minimum 1 week.
Sample and Volume:	10 to 15 mL of serum; keep refrigerated. DO NOT FREEZE . PLEASE NOTE: In cases of suspected infant botulism, the attending physician may feel that the drawing of blood may be too traumatic for the patient and, therefore, could limit any requested botulism testing to stool specimens and/or food samples.
Form Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08.
Sample Container:	Sterile serum vials. Place into an insulated box with coolant.

Shipping Requirements:	Shipment by courier as soon as possible is optimal. If necessary, ship overnight with coolant such as prefrozen gel packs. DO NOT FREEZE. Triple package the sample as an "UN3373- Biological Substances, Category B" for Courier or USPS transport.
Comments:	Additional tests recommended: Botulism Culture, Referred Culture and/or Botulism Culture, Stool or Food and/or Botulism Toxin, Stool or Food.
Test Name:	<i>Brucella abortus</i>, Serology (non-specific for <i>Brucella abortus</i>)
Lab and Phone #:	Biologic Threat Laboratory 617-590-6390
Use of Test:	The detection and quantitation of <i>B. abortus</i> , <i>B. suis</i> and <i>B. melitensis</i> IgG and IgM antibodies in microtiter wells by the agglutination of safranin-O stained whole cells. A 2-mercaptoethanol variation of the test, in which the disulfide bonds in IgM antibodies are disrupted, measures only IgG. Discriminating between antibody responses that are predominately IgM and IgG allows differentiation between acute and chronic brucellosis. See Interpretation of Results.
Test Includes:	Quantitative tube agglutination procedure for assaying titer of homologous agglutinins.
Interpretation of Results:	<p>1. If the agglutination titer of the unreduced serum (in PBS) is:</p> <ul style="list-style-type: none"> (a) $< 1:20$; the serum is negative for agglutinating antibodies against <i>B. abortus</i>, <i>B. melitensis</i>, and <i>B. suis</i>; no serologic evidence of brucellosis caused by one of these species (see Limitations). (b) $\geq 1:20$ but $< 1:160$; the serum has agglutinating antibodies reactive with <i>Brucella</i> antigen, but the serologic evidence for brucellosis is inconclusive. (c) $\geq 1:160$; there is presumptive evidence of brucellosis. (d) Fourfold or greater difference in titer between acute- and convalescent-phase serum specimens to a titer $\geq 1:160$; this is the most significant indication of acute infection and presumptive evidence of brucellosis. (e) $\geq 1:160$ in the only available specimen; this is presumptive evidence of brucellosis having occurred at an unknown time. <p>2. If the agglutination titer of the reduced serum (in PBS/2-mercaptoethanol), relative to that of the unreduced serum, is:</p> <ul style="list-style-type: none"> (a) ≥ 4-fold lower; the agglutination by the unreduced sample is caused at least in part by IgM, which suggests acute infection. (b) The same (\pm one dilution); the agglutination is caused by IgG, which suggests chronic brucellosis <p>3. Serology can provide presumptive evidence of brucellosis, but laboratory confirmation requires the direct demonstration of <i>Brucella</i> spp. in the patient specimen. Serology results should be considered in combination with other clinical, laboratory, and epidemiologic findings. <i>B. abortus</i> strain 1119-3 reacts with antibodies to naturally occurring strains of <i>B. abortus</i>, <i>B. melitensis</i>, and <i>B. suis</i>. This assay does not measure antibodies to <i>B. canis</i> or other non-smooth (rough) types, such as <i>B. abortus</i> RB51, a vaccine strain deficient in LPS O-side chain.</p> <p>4. Cross-reactions have been observed with serum from individuals with <i>Afipia clevelandensis</i>, <i>Escherichia coli</i> 0:157, <i>Francisella tularensis</i>, <i>Vibrio cholerae</i> <i>Yersinia enterolitica</i> serotype 0:9, and other antigenically related species, and especially from persons vaccinated against <i>Vibrio cholerae</i>.</p> <p>5. A negative result, unreduced Brucella microagglutination test (BMAT) titer $< 1:160$, does not necessarily rule out brucellosis. If clinical suspicion persists, another serum specimen should be requested for testing.</p>
Limitations:	Routinely run once every two weeks. Special arrangements for immediate testing can be made for high priority cases.
Availability:	Routinely, 2 weeks (see availability, above). Test procedure itself takes 48 hours to complete.
Turnaround Time:	Serum, collect 5 to 10 mL of whole blood aseptically from patient. Paired serum specimens, (acute and convalescent phase) obtained at least 14 days apart should be collected.
Sample and Volume:	

Sampling Instructions:	Allow blood to clot and obtain the serum with a Pasteur pipette. If serum is not free of erythrocytes, clarify by centrifugation. DO NOT HEAT. Specimen must be clear and free of visible fat. It must be free of excessive hemolysis and not bacterially contaminated.
Form Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08.
Sample Container:	Sealed serum tube.
Shipping Requirements:	Triple package the sample as an "UN3373- Biological Substances, Category B" for transport by courier as soon as possible is optimal. Serum specimens less than or equal to 7 days from collection date should be stored and transported at 2-8°C. If shipping is delayed greater than 7 days from collection date, serum should be stored and shipped frozen
 Test Name:	
Lab and Phone #:	<i>Brucella Culture and PCR</i>
Special Instructions:	Biologic Threat Laboratory 617-590-6390 (24hr/7days) Notify the Bioterrorism Response Laboratory at the above number to report the identification, presumptive or otherwise, of this agent. Instructions for packaging and shipping the specimen as a "UN3373-Biological Substances, Category B", or "UN2814- Infectious Substances Affecting Humans, Category A" will be reviewed over the phone prior to transfer to the SLI.
 Use of Test:	To detect infections caused by <i>Brucella</i> spp.
Test Includes:	Subculture identification or isolation and identification from blood, bone marrow, abscess or biopsy of liver or spleen, etc. Rapid screening by Polymerase Chain Reaction (PCR) for presumptive identification may be performed on a case-by-case basis.
 Normal Range:	<i>Brucella</i> spp. not found. DNA for <i>Brucella</i> spp. not detected by PCR.
Limitations:	Blood cultures are only useful early in the acute phase of the disease.
Availability:	Available after prior consultation with Bioterrorism Response Laboratory.
Turnaround Time:	< 1 day to 3 weeks. Preliminary report may be obtained earlier.
Sample and Volume:	Pure subculture for identification or confirmation, primary specimen for isolation and identification, blood cultures, bone marrow, exudates, joint fluid, abscess, and tissue (spleen, liver).
 Form Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08.
Sample Container:	Subculture: Pure subculture growing on a suitable slanted substrate. Use a screw capped tube. Primary specimen: Commercial aerobic blood culture bottle with CO ₂ for blood; sterile screw-capped tube collected with or without swab to collect exudates, fluids and tissues.
 Sample Test Kit:	Provided by user.
Sample Collection:	Aseptic collection of tissue and body fluid; 5 mL of blood aseptically drawn and inoculated into 50 mL of culture broth.
 Shipping Requirements:	Transport to the laboratory within 24 hours. For primary specimens other than blood, same day delivery is recommended. Submit the sample on coolant (prefrozen ice packs may be used). If same day delivery is not available priority overnight transport is recommended. Package primary specimens as "UN3373- Biological Substances, Category B". Package all pure subcultures or presumptive positive specimens as "UN2814-Infectious Substances Affecting Humans, Category A".
 Comments:	Additional tests recommended: <i>Brucella</i> spp. Serology.

Test Name:	<i>Brucellosis</i>
	See <i>Brucella abortus</i> Serology (non-specific for <i>Brucella abortus</i>); <i>Brucella</i> Culture and PCR.

Test Name:	<i>Burkholderia mallei</i>, Culture and PCR
Lab and Phone #:	Biologic Threat Laboratory 617-590-6390 (24hr/7days)
Special Instructions:	Notify the Bioterrorism Response Laboratory at the above number to report the identification, presumptive or otherwise, of this agent prior to transfer. Instructions for packaging and shipping presumptive positive specimens as a "UN3373-Biological Substances, Category B", or "UN2814- Infectious Substances Affecting Humans, Category A" will be reviewed over the phone prior to transfer to the SLI.
Use of Test:	To rule out infection caused by <i>Burkholderia mallei</i> .
Test Includes:	Subculture identification or isolation and identification of <i>Burkholderia mallei</i> from blood, urine, abscesses, tissue aspirates, fluids, etc. Throat, nasal or sputum specimens are not diagnostic, but may be used in special situations with prior consultation. Rapid screening by Polymerase Chain Reaction (PCR) for presumptive identification of <i>Burkholderia mallei</i> may be performed on a case-by-case basis.
Normal Range:	<i>Burkholderia mallei</i> not found. <i>Burkholderia mallei</i> DNA not detected by PCR.
Availability:	Available after prior consultation with the Bioterrorism Response Laboratory.
Turn Around Time:	< 1 day to 5 days.
Sample:	Primary specimen for isolation and identification- blood culture, urine, bone marrow, tissue aspirates and fluids.
Forms Required:	Pure subculture for identification or confirmation.
Sample Container:	State Laboratory Specimen Submission Form, SS-SLI-1-08. Subculture: Pure subculture growing on suitable slanted substrate. Use a screw capped tube. Primary specimen: Commercial aerobic blood culture bottle for blood; sterile screw-capped tube collected with or without swab to collect exudates, body fluids and tissues.
Sample Test Kit:	Provided by user.
Sample Collection:	Aseptic collection of tissue and body fluid.
Shipping Requirements:	Transport to the laboratory within 24 hours. For primary specimens other than blood, same day delivery is recommended. Submit the sample on coolant (prefrozen ice packs may be used). If same day delivery is not available priority overnight transport is recommended. Package primary specimens as "UN3373- Biological Substances, Category B". Package all pure subcultures or presumptive positive specimens as "UN2814-Infectious Substances Affecting Humans, Category A".

Test Name:	<i>Burkholderia pseudomallei</i>, Culture and PCR
Lab and Phone #:	Biologic Threat Laboratory 617-590-6390 (24hr/7days)
Special Instructions:	Notify the Bioterrorism Response Laboratory at the above number to report the identification, presumptive or otherwise, of this agent prior to transfer. Instructions for packaging presumptive positive specimens as a "UN3373-Biological Substances, Category B", or "UN2814- Infectious Substances Affecting Humans, Category A" will be reviewed over the phone prior to shipment to the SLI.
Use of Test:	To rule out infection caused by <i>Burkholderia pseudomallei</i> .
Test Includes:	Subculture identification or isolation and identification of <i>Burkholderia pseudomallei</i> from blood, urine, abscesses, tissue aspirates, fluids, etc. Throat, nasal or sputum specimens are not diagnostic, but may be used in special situations with prior consultation. Rapid screening by Polymerase Chain Reaction (PCR) for presumptive identification of <i>Burkholderia pseudomallei</i> may be performed on a case-by-case basis.
Normal Range:	<i>Burkholderia pseudomallei</i> not found. <i>Burkholderia pseudomallei</i> DNA not detected by PCR.
Availability:	Available after prior consultation with the Bioterrorism Response Laboratory.
Turn Around Time:	< 1 day to 5 days.
Sample:	Pure subculture for identification or confirmation, primary specimen for isolation and identification, blood culture, urine, bone marrow, tissue aspirates and fluids.
Forms Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08.

Sample Container: Subculture: Pure subculture growing on suitable slanted substrate. Use a screw capped tube.
 Primary specimen: Commercial aerobic blood culture bottle for blood; sterile screw-capped tube collected with or without swab for exudates, body fluids and tissues.

Sample Test Kit: Provided by user.

Sample Collection: Aseptic collection of tissue and body fluid.

Shipping Requirements: Transport to the laboratory within 24 hours. For primary specimens other than blood, same day delivery is recommended. Submit the sample on coolant (prefrozen ice packs may be used). If same day delivery is not available priority overnight transport is recommended. Package primary specimens as "UN3373- Biological Substances, Category B". Package all pure subcultures or presumptive positive specimens as "UN2814-Infectious Substances Affecting Humans, Category A".

Test Name: Cadmium, Urine (for research purposes only).

Lab and Phone: Environmental Chemistry Laboratory **617-983-6657**

Use of Test: To measure acute cadmium exposure.

Method of Analysis: Acid extraction followed by graphite furnace atomic absorption spectroscopy.

Acceptable Range: 0 to 5 µg/g creatinine

Toxic Concentrations: > 5 ug/g creatinine

Turnaround Time: 10 working days.

Sample Volume: 100 mL

Sampling Instructions: Call laboratory for sampling instructions and container.

Form Required: Proper documentation of provider, patient and sample.

Container: Trace metal free urine specimen collection container

Collection: First void sample or an aliquot of a 24-hour urine collection. Measure and record the volume on the required form.

Shipping Requirements: The sample must be refrigerated and must be submitted to the laboratory for preservation within 24 hours of collection. Secure container, package, mark and label the package properly to avoid sample loss and ensure safe delivery. Package and mark the specimens for transport as "Exempt Human Specimen".

Comments: All trace metal levels in urine are corrected for creatinine.

Test Name: Calicivirus PCR

Lab and Phone #: Virus Isolation Laboratory **617-983-6853/ 6382**

Use of Test: For outbreak investigations only, not for individual diagnosis

Special Instructions: Samples are sent to CDC. Please call the Virus Isolation Laboratory prior to submitting specimens.

Limitations: Calicivirus may be detected in the stools of asymptomatic individuals. Some calicivirus types may not be detected with primers currently in use. Available patient information should be considered when interpreting test results. This PCR-based test should be considered an investigational tool.

Sample: Stool (No additives or preservatives).

Form Required: State Laboratory Specimen Submission Form, SS-SLI-1-08.

Sample Container: Sterile screw-capped container.

Sample Collection: Call the laboratory for sampling instruction.

Sample Test Kit: Provided by user.

Shipping Requirements: Transport to the laboratory within 24 hours at refrigerator temperature. Use a triple packaging system for transporting by Courier and USPS. Mark the outer package as "UN3373- Biological Substances, Category B".

Comments: **Additional tests recommended:** Bacterial and other testing for causes of gastroenteritis may be appropriate based on incubation period, symptoms and other factors.

Test Name:	<u>California Encephalitis Antibody</u>
Lab and Phone #:	Sample sent to CDC.
Use of Test:	Virus Serology Laboratory 617-983-6396
Significant Result:	Early serodiagnosis of an infection with this group of agents.
Limitations:	Presence of IgM indicates current or recent infection with this agent. Cross-reactions occur with other members of the California encephalitis group, although the LaCrosse strain is the most likely agent to be encountered in the midwest region.
Sample and Volume:	3 mL of serum, no additives.
Form Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08.
Sample Test Kit:	Provided by user.
Sample Collection:	Acute serum (\geq 3mL) should be collected within the first 14 days following onset of symptoms and sent immediately to the State Laboratory. For samples collected before day 8 after onset of symptoms and negative by EIA test, a second serum is recommended to be drawn 10-14 days after onset of symptoms.
Shipping Requirements:	Transport to the laboratory within 24 hours at refrigerator temperature. Use a triple packaging system for transporting by Courier and USPS. Mark the outer packing "UN3373- Biological Substances, Category B".
Test Name:	<u>California Encephalitis Virus Culture</u>
	See Arbovirus Culture, Human; CDC Serology- Viral/ Other.
Test Name:	<u>Campylobacter Culture, Food</u>
	See <i>Campylobacter</i> Isolation, Food.
Test Name:	<u>Campylobacter Isolation, Food</u>
Lab and Phone #:	Food Bacteriology Laboratory 617-983-6610
Use of Test:	To support epidemiologic evidence implicating a food as a possible source of illness.
Special Instructions:	Food samples must be submitted through local or state public health agencies and implicated in an outbreak (one or more ill consumers). The laboratory should be notified by phone prior to submission. Include the source of the sample and any other pertinent information on the specimen submission form.
Test Includes:	Isolation and identification of <i>Campylobacter</i> species and organoleptic examination.
Limitations:	Foods will be examined for <i>Campylobacter</i> only if the clinical and epidemiologic information is compatible with <i>Campylobacter</i> foodborne disease.
Contraindications:	An interval of less than 24 hours between consumption of suspect food and onset of symptoms is <u>not</u> indicative of illness caused by <i>Campylobacter</i> .
Availability:	Monday through Friday.
Turnaround Time:	3 to 7 days.
Sample and Volume:	At least 100 grams is preferable but lesser amounts are acceptable.
Form Required:	Food Bacteriology Specimen Submission Form, SS-FD-1-06 Forms are available through the Food Microbiology Lab 617- 983-6610, the MDPH Division of Food and Drugs, Food Protection Program at 617-983-6712, and the local Board of Health.
Sample Container:	Original sample container as submitted by inspector or other sterile leak proof container.
Sample Collection:	Collect food aseptically and place in sterile whirlpack bags or other sterile, leak proof container. Keep all samples refrigerated except those samples received frozen which should be maintained in the frozen state.
Shipping Requirements:	Triple package samples. Transport samples on ice or on prefrozen cold packs, in appropriate packagings.
Comments:	Additional Tests Recommended: Enteric Pathogens, Routine Culture.

Test Name: ***Campylobacter* species**
See Enteric Pathogens, Referred Culture; Enteric Pathogens, Routine Culture.

Test Name: **Candidiasis Serology**
See CDC Serology–Bacterial/Fungal/Protozoal.
Reference Bacteriology Laboratory 617-983-6607

Test Name: **CDC Culture Identification, Bacteriology**
Lab and Phone #: **617-983-6607**
Test Includes: Reference Bacteriology Laboratory
Any patient specimen or patient culture sent to CDC for specialized culture and/or identification procedure. For *Streptococcus pneumoniae* serotyping, see Serotyping, *Streptococcus pneumoniae*, *Streptococcus pyogenes* (M and T Typing).
Availability: Monday through Friday.
Turnaround Time: Variable.
Sample: Pure culture isolate or primary specimen sent with prior consultation.
Form Required: State Laboratory Specimen Submission Form, SS-SLI-1-08. Indicate reason for testing.
Shipping Requirements: Package and ship as “UN3373-Biological substance, Category B”.

Test Name: **CDC Culture Identification, Mycobacteriology**
Lab and Phone#: **617-983-6381**
Special Instructions: Phone the laboratory in advance to request.
Turnaround Time: More than 30 days.
Form Required: State Laboratory Specimen Submission Form, SS-SLI-1-08.
Sample Test Kit: TB Culture Kit.
Shipping Requirements: Contact Mycobacteriology Laboratory for packaging and shipping instructions.

Test Name:	CDC Serology-Bacterial/Fungal/Protozoal	
Lab and Phone #:	Reference Bacteriology Laboratory	617-983-6607
Test Includes:		
Turnaround Time:	Qualitative and/or quantitative assays for various bacterial, fungal and protozoal agents performed by the CDC, Atlanta, GA. Specific agent desired must be written on requisition form.	2 to 4 weeks.
Sample Volume:	1 mL of serum or cerebrospinal fluid.	
Form Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08.	
Sample Container:	Provided by user.	
Sample Collection:	Routine blood draw or spinal tap.	
Shipping Requirements:	Use triple packaging system. Package, mark, label, and ship as "UN3373-Biological Substances, Category B".	
Comments:	Additional information needed: paired sera are preferred for leptospirosis. Call the laboratory prior to submitting sera for malaria.	
Test Name:	CDC Serology- Viral/ Other	
Lab and Phone #:	Virus Serology Laboratory	617-983-6396
Test Includes:		
Significant Result:	Viral agent testing performed by the CDC in Atlanta, Puerto Rico or Fort Collins. Agents to be tested for, but not limited to, include Dengue fever, Rickettsia, Ehrlichia, Q Fever, Babesia, Yellow Fever, Powassan, Western Equine Encephalitis, and Lymphocytic Choriomeningitis (LCM).	
Turnaround Time:	Interpretation included with report.	
Sample and Volume:	4 to 8 weeks.	
Forms Required:	2 mL of serum.	
Sample Test Kit:	State Laboratory Specimen Submission Form, SS-SLI-1-08.	
Sample Collection:	Provided by user.	
Shipping Requirements:	Usually acute and convalescent sera. Call laboratory for instructions.	
Comments:	Triple package, mark, label, and ship as "UN3373-Biological Substances, Category B". Additional information needed: Relevant travel history, vaccine history, and date of onset must accompany sample.	
Test Name:	Chagas' Disease Serology	
	See CDC Serology-Bacterial/Fungal/Protozoal.	
	Reference Bacteriology Laboratory 617-983-6607	
Test Name:	Chancroid, <i>Haemophilus ducreyi</i>, Culture	
	See <i>Haemophilus ducreyi</i> , Culture.	
Test Name:	Chemical Contaminants, Food	
Lab and Phone:	Environmental Chemistry Laboratory	617-983-6657
Test Includes:		
Use of Test:	Report food and beverage chemical contaminant incidents to:	
Test Includes:	Local Board of Health (LBOH) for clinicians and consumers, or MDPH Division of Food and Drugs, Food Protection Program (FFP) at 617-983-6712 for healthcare facilities, public safety officials, and businesses. The LBOH and FPP will initiate an investigation with those reporting the incident and coordinate any laboratory analysis needed with the Environmental Chemistry Laboratory.	
Turnaround Time:	Investigation of chemically induced food-borne illness.	
Sample:	Metals, organics, shellfish toxins, biogenic amines.	
Forms Required:	5 to 10 working days	
Container:	Food product and appropriate control samples.	
Collection:	Food Borne Illness Intake Form from LBOH, or FFP at 617-983-6712.	
Shipping Requirements:	Varies with testing algorithm.	
	Call the laboratory for sampling, storage and transport procedures.	
	Vary with testing algorithm.	

Test Name:	<u>Chlamydia trachomatis, Amplified Molecular Assay (AMA)</u>
Lab and Phone #:	STD Bacteriology Laboratory 617-983-6600
TESTING IS AVAILABLE ONLY ON SPECIMENS FROM ASSIGNED CLINICS: Assigned clinics are specific sites selected to monitor disease prevalence throughout the Commonwealth.	
Use of Test: Selective screening of individuals at risk of Sexually Transmitted Diseases (STDs), including sexually active adolescents, contacts of STD patients, individuals with multiple sexual partners, and individuals exhibiting symptoms of an STD.	
Test Includes:	Amplified Molecular Assay (AMA).
Normal Range:	Negative for Chlamydia.
Limitations:	The only forensically acceptable Chlamydia test for medico-legal cases is a culture. AMA is not recommended for post-treatment assessment ("Test of Cure") and is not valid for sexual abuse/assault. In addition, specimens that may be tested are limited to those urogenital sites listed above; other sites are not approved by the FDA and will not be tested. The allowable time lapses between collection of the specimen, transport and receipt is critical and of limited length.
Availability:	Monday through Friday.
Turnaround Time:	1 to 4 days.
Sample:	Endocervical swab for females, urethral swabs for males, urines for males and females.
Forms Required:	Chlamydia Requisition Forms, supplied to assigned clinics by prior arrangement.
Sample Container:	STD Chlamydia Kits for transport of swab specimens. Transport outfits for urine supplied with collection kits. Kits are supplied to assigned clinics by prior arrangement.
Sample Test Kits:	Supplied to assigned clinics by prior arrangement.
Sample Collection:	In addition to the instructions provided in the kit, on-site training is provided to assigned clinics.
Shipping Requirements:	Direct courier delivery to Chlamydia Lab. Use triple packaging system for transporting by courier. Mark the outer packing "UN3373-Biological Substance, Category B".
Comments:	Additional tests recommended: Specimens from sites other than those listed as acceptable for this test may be tested for Chlamydia by culture method, Antigen Detection or by Direct Fluorescent Antibody (DFA) depending on collection site and circumstances of testing. These tests are available through private laboratories.

Test Name:	<u>Chlamydia trachomatis Antibody Serology</u>
Lab and Phone #:	STD Bacteriology Laboratory 617-983-6600
Serodiagnosis of recent or current infection with <i>C. trachomatis</i>	
IgG testing for <i>C. trachomatis</i> by indirect immunofluorescence assay.	
Use of Test:	Seroconversion (four-fold increase in titer)
Test Includes:	Cross-reactivity with other <i>Chlamydia</i> species may occur. Antibodies detected in an unpaired serum sample may reflect either past or current/recent infection. Test results must be interpreted within the clinical context.
Significant Result:	Monday through Friday
Limitations:	2-7 days
Availability:	3 mL of serum
Turnaround Time:	State Laboratory Specimen Submission Form, SS-SLI-1-08.
Sample and Volume:	Provider by user.
Forms Required:	Routine blood draw. Serum separator tube preferred, though red top serum tubes are acceptable. Convalescent specimens should be collected at least 10-14 days after the acute specimens.
Sample Test Kit:	Use triple packaging system for transporting by courier or USPS. Mark the outer packing "UN3373-Biological Substance, Category B".
Sample Collection:	
Shipping Requirements:	

Test Name:	<u>Cholera (<i>Vibrio cholerae</i>)</u>
	See Enteric Pathogens, Referred Culture; Enteric Pathogens, Routine Culture.

Test Name:	<u>Clostridium botulinum, Culture</u> See Botulism Culture, Food or Stool; Botulism Culture, Referred Culture.
Test Name:	<u>Clostridium perfringens Culture, Food</u> See <i>Clostridium perfringens</i> Plate Count, Food.
Test Name:	<u>Clostridium perfringens Culture, Stool</u> See Enteric Pathogens, Routine Culture. Note: Available only through local Health Departments in Massachusetts. Testing is limited to outbreak situations wherein <i>C. perfringens</i> has been isolated and quantified in significant numbers from related food samples.
Test Name:	<u>Clostridium perfringens Plate Count, Food</u>
Lab and Phone #:	Food Bacteriology Laboratory 617-983-6610
Use of Test:	To support epidemiologic evidence implicating food as a possible source of illness;
Special Instructions:	Food samples must be submitted through local or state public health agencies and implicated in an outbreak (one or more ill consumers). The laboratory should be notified by phone prior to submission. Include the source of the sample and any other pertinent information on the specimen submission form. Culture and enumeration of <i>C. perfringens</i> and an organoleptics examination. Foods will be examined for <i>C. perfringens</i> only if the clinical and epidemiologic information is compatible with <i>C. perfringens</i> foodborne disease.
Test Includes:	An interval of greater than 36 hours between consumption of suspect food and the onset of symptoms is <u>not</u> indicative of illness caused by <i>C. perfringens</i> . Significant vomiting is <u>not</u> a common symptom of illness caused by <i>C. perfringens</i> .
Limitations:	Monday through Friday.
Contraindications:	2 to 7 days.
Availability:	At least 100 grams is preferred but lesser amounts are acceptable.
Turnaround Time:	Food Bacteriology Specimen Submission Form, SS-FD-1-06. Forms are obtainable from the Food Microbiology Lab by calling 617-983-6610; the MDPH, Division of Food and Drugs, Food Protection Program at 617- 983-6712, and from the local Board of Health.
Sample and Volume:	Original sample container as submitted by inspector or other sterile leak proof container.
Forms Required:	Collect food aseptically and place in sterile whirlpack bags or other sterile, leak proof container. Do not freeze samples suspected of containing <i>C. perfringens</i> , as this will diminish the number of organisms recovered on culture. Store and submit samples at refrigerated temperatures.
Sample Container:	Transport or ship samples on prefrozen ice packs, ice or at refrigerated temperatures in appropriate packings.
Sample Collection:	Additional test recommended: <i>Clostridium perfringens</i> Culture, Stool.
Shipping Requirements:	
Comments:	
Test Name:	<u>Coccidioidomycosis Serology</u> See CDC Serology–Bacterial/Fungal/Protozoal. Reference Bacteriology Laboratory 617-983-6607
Test Name:	<u>Corynebacterium diphtheriae Culture</u> See Diphtheria, Culture and In Vitro Toxigenicity.

Test Name:	<i>Coxiella burnetii</i>, PCR and TRF	
Lab and Phone #:	Biologic Threat Laboratory	617-590-6390 (24hr/7days)
Special Instructions:	Notify the Bioterrorism Response Laboratory at the above number to report the identification, presumptive or otherwise, of this agent prior to transfer.	
	Instructions for packaging presumptive positive specimens as a "UN3373-Biological Substances, Category B", or "UN2814- Infectious Substances Affecting Humans, Category A" will be reviewed over the phone prior to transfer to the SLI.	
Use of Test:	To rule out infection caused by <i>Coxiella burnetti</i> .	
Test Includes:	Rapid screening by Polymerase Chain Reaction (PCR) and by Time Resolved Fluorescence (TRF) for presumptive identification of <i>Coxiella burnetti</i> will be performed on a case-by-case basis.	
Normal Range:	<i>Coxiella burnetti</i> DNA not detected by PCR. No <i>Coxiella burnetti</i> detected by fluoroimmunoassay.	
Availability:	Available after prior consultation with the Bioterrorism Response Laboratory.	
Turn Around Time:	< 1 to 2 days	
Sample:	Pure subculture for identification or confirmation, primary specimen for identification, transtracheal or bronchial washings, tissue aspirates, swabs of lesions and nasopharyngeal swabs.	
Forms Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08.	
Sample Container:	Primary specimen- commercial aerobic blood culture bottle for blood; sterile screw-capped tube collected with or without swab to collect fluids and tissues. Subculture- pure culture growing on suitable slanted substrate. Use a screw capped tube.	
Sample Test Kit:	Provided by user.	
Sample Collection:	Aseptic collection of tissue and body fluid.	
Shipping Requirements:	Transport to the laboratory within 24 hours. For primary specimens other than blood, same day delivery is recommended. Submit the sample on coolant (prefrozen ice packs may be used). If same day delivery is not available priority overnight transport is recommended. Package primary specimens as "UN3373- Biological Substances, Category B". Package all pure subcultures or presumptive positive specimens as " UN2814-Infectious Substances Affecting Humans, Category A".	

Test Name:	Cryptococcosis Serology
	See CDC Serology–Bacterial/Fungal/Protozoal. Reference Bacteriology Laboratory 617-983-6607

Test Name:	<i>Cryptosporidium</i> species (DFA)	
Lab and Phone #:	Parasitology Laboratory	617-983-6661
Special Instructions:	Contact MDPH, BCDC, Division of Epidemiology at 617-983-6800 before submitting a sample.	
Use of Test:	Detection of <i>Cryptosporidium</i> oocysts and <i>Giardia</i> cysts in stool.	
Significant Result:	Detection of 1 or more <i>Cryptosporidium</i> oocysts and/or 1 or more <i>Giardia</i> cysts.	
Limitations:	A complete O&P (Ova and Parasite) examination is <u>not</u> performed. Only the presence or absence of <i>Cryptosporidium</i> or <i>Giardia</i> will be reported. If other potential pathogens are incidentally identified, specimens may be forwarded to the CDC for further testing. Oocysts and cysts may be shed intermittently. Multiple stool specimens may need to be submitted to increase the likelihood of detection. This test only confirms current infection; it does not identify previous infections.	
Availability:	As approved by a MDPH Epidemiologist for cluster investigation.	
Turnaround Time:	2 to 7 days	
Sample:	Stool in 10% Formalin. See kit instructions for appropriate sample volume.	
Forms Required:	State Laboratory Institute Specimen Submission Form SS-SLI-1-08.	
Sample Test Kit:	Parasitology Test Kit. To order kits call 617- 983-6640.	

Sample Collection:	Specimens should be collected as soon as possible after symptom onset and prior to any medical/ antimicrobial treatment. Instructions for collecting samples are included in the Parasitology Test Kit.
Shipping Requirements:	Ship at ambient temperature. Use triple packaging system for transporting by courier or USPS. Mark the outer packing "UN3373-Biological Substances, Category B".
Test Name:	<u>Cyclospora spp. (Microscopy)</u>
Lab and Phone #	Parasitology Laboratory 617-983-6661
Special Instructions:	Contact MDPH, BCDC, Division of Epidemiology at 617-983-6800 before submitting a sample.
Use of Test:	Detection of <i>Cyclospora</i> oocysts in stool.
Significant Result:	Detection of 1 or more <i>Cyclospora</i> oocysts.
Limitations:	A complete O&P (Ova and Parasite) examination is <u>not</u> performed. Only the presence or absence of <i>Cyclospora</i> will be reported. However, if other potential pathogens are incidentally identified, specimens may be forwarded to the CDC for further testing. Oocysts may be shed intermittently. Multiple stool specimens may need to be submitted to increase the likelihood of detection. This test only confirms current infection; it does not identify previous infections. False negatives may also occur if the patient was recently treated with any of the following: antacids, barium, bismuth, anti-diarrheal medications, oily laxatives (i.e. mineral oil), antibiotics, or gallbladder dyes.
Availability:	As approved by a MDPH Epidemiologist for cluster investigation.
Turnaround Time:	2 to 7 days
Sample:	Stool in 10% formalin. See kit instructions for appropriate sample volume.
Forms Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08.
Sample Test Kit:	Parasitology Test Kit. Kits can be ordered by calling 617-983-6640.
Sample Collection:	Specimens should be collected as soon as possible after symptom onset, and prior to any medical/antimicrobial treatment. Instructions for collecting samples are included in the test kit.
Shipping Requirements:	Use triple packaging system for transporting by courier or USPS. Mark the outer packing "UN3373- Biological Substances, Category B".
Comments:	None
Test Name:	<u>Cysticercosis Serology</u>
	See CDC Serology-Bacterial/Fungal/Protozoal.
	Reference Bacteriology Laboratory 617-983-6607
Test Name:	<u>Cytomegalovirus Culture</u>
Lab and Phone #:	Virus Isolation Laboratory 617-983-6853/ 6382
Special Instructions:	Only samples having prior approval of the Virus Isolation Laboratory or from state affiliated institutions are accepted for testing.
Availability:	As requested
Turnaround Time:	2 to 28 days for positive report / 28 days for negative report.
Sample:	Urine, cerebral spinal fluid, tissue, buffy coat.
Forms Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08.
Sample Test Kit:	Provided by user.
Sample Collection:	Call laboratory prior to collection.
Shipping Requirements:	Transport to the laboratory within 24 hours at refrigerator temperature. Ship as a "UN3373- Biological Substances, Category B". using the appropriate triple packaging system for courier, mail, commercial or air transport.
Comments:	Note: Culture for additional viruses may be performed at the discretion of the lab.

Test Name:	Diphtheria, Culture and In Vitro Toxigenicity	
Lab and Phone #:	Reference Bacteriology Laboratory	617-983-6607
Use of Test:	Rule out <i>Corynebacterium diphtheriae</i> as causative agent of infection.	
Test Includes:	Culture for <i>Corynebacterium diphtheriae</i> . In Vitro toxin assay is performed on all isolates. The CDC, Atlanta, GA, performs PCR testing with prior consultation.	
Normal Range:	Negative for <i>C. diphtheriae</i> .	
Limitations:	Screen for <i>C. diphtheriae</i> only. Rule out Group A <i>Streptococcus</i> .	
Contraindications:	Lack of clinical evidence for infection with <i>C. diphtheriae</i> .	
Availability:	Monday through Friday.	
Turnaround Time:	24-hour preliminary report, if suspicious; final report in 3 to 4 days.	
Sample:	Swab from the inflamed areas of the membranes in throat and nasopharynx, skin lesion and material from wounds removed by swab or aspiration.	
Forms Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08.	
Sample Container:	Swab shipped dry in a sterile tube or in a special packet containing a desiccant such as silica gel provided by the user. A transport medium may be used if the sample is being delivered by courier the same day as collected.	
Sample Collection:	Swabs from infected membranes in throat and nasopharynx as well as skin lesions.	
Shipping Requirements:	Same day delivery is recommended. Use triple packaging system for courier.	
Comments:	Overnight priority mail is recommended if same day delivery is not possible. Use a triple packaging system. Ship as "UN3373- Biological Substances, Category B". Additional tests recommended: Direct smear for organisms of Vincent's angina and culture for group A <i>Streptococcus</i> and <i>Arcanobacterium haemolyticum</i> .	

Test Name:	Eastern Equine Encephalitis Culture and PCR	
	See Arbovirus Culture and PCR, Human.	

Test Name:	Eastern Equine Encephalitis Virus Antibody IgM and IgG, Human	
Lab and Phone #:	Virus Serology Laboratory	617-983-6396
Use of Test:	Diagnosis of current infection with Eastern Equine Encephalitis Virus.	
Test Includes:	Qualitative IgM capture EIA and IgG indirect EIA testing.	
Significant Result:	Positive IgM.	
Limitations:	May cross-react with other arboviruses.	
Availability:	Routinely from May to October.	
Turnaround Time:	2 to 7 days.	
Sample and Volume:	3 mL of serum; at least 1 mL of cerebrospinal fluid collected aseptically.	
Forms Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08.	
Sample Test Kit:	Provided by user.	
Sample Collection:	Acute serum (\geq 3mL) and CSF (\geq 1 mL) should be collected within the first 14 days following onset of symptoms and sent immediately to the State Laboratory. For samples collected before day 8 after onset of symptoms and negative by EIA test, a second serum is recommended to be drawn 10-14 days after onset of symptoms.	
Shipping Requirements:	Transport or ship samples at refrigerated temperature. Ship as an "UN3373- Biological Substances, Category B" using the appropriate triple packaging system for transport.	

Test Name:	Eastern Equine Encephalitis Virus Antibody IgM and IgG, Horses	
Lab and Phone #:	Virus Serology Laboratory	617-983-6396
Use of Test:	Serodiagnosis of a recent or prior infection or vaccination EEE. In the absence of symptoms and when the IgM results are negative, the IgG test results can be used as an indicator of immunity or past infection.	
Test Includes:	Separate qualitative EIA testing for EEE antibodies	
Significant Result:	Presence of IgM indicates recent or current infection or vaccination. IgM absent/IgG present suggests prior exposure.	
Availability:	Routinely from May to October.	

Turnaround Time:	2 to 7 days
Sample and Volume:	3 mL of serum, no additives; at least 1 mL of cerebrospinal fluid collected aseptically.
Form Required:	State Laboratory Animal Submission Form, SS-SLI-2-07.
Sample Test Kit:	Provided by user.
Sample Collection:	Acute serum (\geq 3mL) and CSF (\geq 1 mL) should be collected within the first 14 days following onset of symptoms and sent immediately to the State Laboratory. For samples collected before day 8 after onset of symptoms and negative by EIA test, a second serum is recommended to be drawn 10-14 days after onset of symptoms.
Shipping Requirements:	Mark and ship as an "Exempt Animal Specimen" using the appropriate triple packaging system for courier or USPS.

Test Name: **Echinococcosis Serology**
 See CDC Serology–Bacterial/Fungal/Protozoal.
 Reference Bacteriology Laboratory 617-983-6607

Test Name: **Ehrlichia Serology**
 See CDC Serology- Viral/ Other.
 Virus Serology Laboratory 617-983-6396

Test Name: **Ehrlichiosis Serology**
 See CDC Serology- Viral/ Other.
 Virus Serology Laboratory 617-983-6396

Test Name: **Entamoeba histolytica Serology**
 See CDC Serology–Bacterial/Fungal/Protozoal.
 Reference Bacteriology Laboratory 617-983-6607

Test Name: **Enteric Pathogens, Referred Culture**
Lab and Phone #: **617-983-6600**
Test Includes:
 Genus and species identification of pathogenic isolates in the Enterobacteriaceae, Campylobacteraceae, and Vibrionaceae families (including *Salmonella* sp., *Shigella* sp., *Yersinia* sp., *E. coli* O157:H7, *Alkalescens* *dispar* {*E. coli* O-Antigen Groups 1 and 25}, *Campylobacter* sp., *Arcobacter* sp., *Vibrio* sp., *Aeromonas* sp., and *Plesiomonas shigelloides*). Tests include serotyping for *Salmonella*, *Shigella*, *Vibrio cholerae*, and *E. coli* O157:H7 isolates and biogrouping for *Yersina enterocolitica* isolates. Problematic isolates are submitted to CDC for serotyping.

1. Serotyping is occasionally problematic if the culture has become rough and/or non-motile or is encapsulated.
2. Cultures of the Campylobacteriaceae must be submitted under more exacting conditions than those of the other organisms, i.e., pure culture is more important and timely submission is imperative. Sufficient growth must be obtained prior to sending sample to the State Laboratory.

Availability: Monday through Friday.
Turnaround Time: Usually 1 to 4 days for Enterobacteriaceae, 1 to 5 days for Campylobacteriaceae; 3 to 5 days for Vibrionaceae.

Sample:	Pure culture on appropriate medium (tubed media preferred). Media should be inoculated and incubated for 24 hours prior to shipping.
Forms Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08.
Sample Container:	Screw-capped tube.
Shipping Requirements:	Use triple packaging. Ship at ambient temperature. Depending on the organism, mark outer packing as, "UN2814-Infectious Substances Affecting Humans, Category A" or, "UN3373- Biological Substances, Category B". Call laboratory for instructions.
Test Name:	Enteric Pathogens, Routine Culture
Lab and Phone #:	Enteric Bacteriology Laboratory 617-983-6609
Use of Test:	Screen for bacterial cause of diarrheal disease.
Test Includes:	Culturing for <i>Salmonella</i> , <i>Shigella</i> , <i>Campylobacter</i> , <i>Arcobacter</i> , <i>Yersinia</i> , <i>Vibrio</i> , and/or <i>E. coli</i> O157:H7. Also available through local health departments in Massachusetts are the following: Culturing for <i>Bacillus cereus</i> , <i>Clostridium perfringens</i> , and <i>Staphylococcus aureus</i> . These last three tests are limited to outbreak situations wherein the respective organism has been isolated and quantified in significant numbers from related food samples.
Normal Range:	Negative for enteric pathogens.
Limitations:	Stool specimens must be properly submitted, with transport containers not overfilled and with transport medium not removed. Specimen jars must be tightly closed and not leaking when received. Urine or other foreign material must not be mixed with the stool material. The time interval between collection of the specimen and receipt in the Lab must not be greater than 5 days.
Availability:	Monday through Friday. Weekends during significant outbreaks.
Turnaround Time:	Minimum 72 hours, maximum 1 week.
Sample and Volume:	Stool specimen (approximately one gram). Rectal swab is acceptable but less desirable than stool.
Forms Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08. In outbreak situations, indicate on the submission form specific outbreak identification and whether specimen is from a food-handler, other employee, or from a consumer. For all suspected pathogens except <i>Vibrio</i> species, use an Enteric Kit (for stool collection and transport). Kits may be ordered by calling 617-983-6640. If necessary, a fresh stool on ice is acceptable if delivered on the same day as collected. For stools in which <i>Vibrio</i> species is suspected, submission of stool specimen in Cary-Blair Transport Medium at room temperature is recommended. Except <i>V. cholerae</i> , which must be shipped in Cary-Blair Medium, Enteric kits may be used for any <i>Vibrio</i> sp. as long as the specimens are delivered to the State Laboratory as soon as possible. Sufficient moisture content of the specimen is the most important factor in maintaining the viability of <i>Vibrio</i> species. Call the Enteric Bacteriology at 617-983-6609 prior to submission whenever <i>Vibrio cholerae</i> is suspected.
Sample Test Kit:	For Enteric Kit, add stool to "Para-Pak" C&S transport media vial to bring the liquid level up to the "Add specimen to this line" mark on the vial (approximately 1 gram of stool). DO NOT OVERFILL. For fresh stool, use sterile screw-capped plastic specimen collection jar. For Cary-Blair Medium, inoculate a small amount of stool below the surface of the medium.
Sample Collection:	For Enteric kit or Cary-Blair Medium, ship at room temperature. For fresh stools only, transport with coolant. Use triple packaging system for courier or USPS. Mark outer packaging as "UN3373- Biological Substances, Category B".
Shipping Requirements:	

Test Name: **Enterohemorrhagic *E. coli* (EHEC) O157:H7**
See Enteric Pathogens, Referred Culture; Enteric Pathogens, Routine Culture.

Test Name: **Enterohemorrhagic *E. coli* (EHEC) NON-O157:H7**
See Shiga Toxin (Verotoxin) Assay.

Test Name: **Enterovirus Culture**
Lab and Phone #: **617 983-6853/6382**
Use of Test: Virus Isolation Laboratory
May detect coxsackieviruses, echoviruses, polioviruses and other viruses.
Limitations: Enteroviruses may be recovered from stools of asymptomatic patients. Vaccine strain polioviruses may be recovered from stools of recently vaccinated individuals or their contacts. This test is usually performed in the context of an outbreak.

Availability: As requested
Turnaround Time: 2 to 10 days for positive report or 10 days for negative report.
Sample: Throat swab, stool, cerebrospinal fluid, tissue, vesicular fluid.
Forms Required: State Laboratory Specimen Submission Form, SS-SLI-1-08.
Sample Test Kit: Provided by user.
Sample Collection: Call the laboratory for sample collection instructions.
Comments: **Shipping Requirements:** Transport to the laboratory within 24 hours at refrigerated temperature. Use triple packaging system for courier or USPS. Mark outer packaging as "UN3373- Biological Substances, Category B".
Note: Culture for additional viruses may be performed at the discretion of the laboratory. Typing of poliovirus performed but serotyping of other isolates is performed only at CDC under special circumstances.

Test Name: **Erythema Migrans**
See Lyme Disease, Western Blot IgM and IgG.

Test Name: **Farmer's Lung Serology**
See CDC Serology-Bacterial/Fungal/Protozoal.
Reference Bacteriology Laboratory 617-983-6607

Test Name: **Febrile Agglutinins**
See *Brucella abortus* Serology; *Francisella tularensis* Serology.

Test Name: **Filth Analysis (Examination for Extraneous Materials)**
Lab and Phone #: **617-983-6610**
Use of Test: Food Bacteriology Laboratory
To verify and identify the presence of extraneous foreign matter in food.
Special Instructions: Perishable samples should be submitted as soon as possible. Samples containing sharp objects (e.g., glass) should be handled with caution.
Test Includes: Include the source of the sample and any other pertinent information on the specimen submission form.
Examination of foods and liquids for extraneous material such as insects, larvae, rodent droppings, glass or other foreign matter including an organoleptic exam.
Limitations: Perishables should be examined within 2 days.

Availability:	Monday through Friday.
Turnaround Time:	1 to 2 days.
Sample and Volume:	Remainder of sample.
Forms Required:	Food Bacteriology Specimen Submission Form, SS-FD-1-06. Forms are obtainable from the Food Bacteriology Lab by calling 617-983-6610, the MDPH Division of Food and Drugs, Food Protection Program at 617-983-6712, and by the local Board of Health.
Sample Container:	Original sample container as submitted by inspector, or leak proof container.
Sample Collection:	Samples should be submitted in leakproof packaging or original containers.
Shipping Requirements:	Transport or ship non-perishable food at room temperature. Transport or ship perishable food on ice or on prefrozen ice packs.
Test Name:	<i>Francisella tularensis, Culture and PCR</i>
Lab and Phone #:	Biologic Threat Laboratory 617-590-6390 (24hr/7days)
Special Instructions:	Notify the Bioterrorism Response Laboratory at the above number to report the identification, presumptive or otherwise, of this agent prior to transfer. Instructions for packaging presumptive positive specimens as a "UN3373-Biological Substances, Category B", or "UN2814- Infectious Substances Affecting Humans, Category A" will be reviewed over the phone prior to transfer to the SLI.
Use of Test:	To rule out infections caused by <i>Francisella tularensis</i> .
Test Includes:	Subculture identification or isolation and identification of <i>Francisella tularensis</i> from blood, biopsy tissue, aspirates, fluids, and swabs from lesions. Rapid screening by Polymerase Chain Reaction (PCR) for presumptive identification of <i>Francisella tularensis</i> may be performed on a case-by-case basis.
Normal Range:	<i>Francisella tularensis</i> not found. DNA for <i>Francisella tularensis</i> not detected by PCR.
Contraindications:	Patients without clinical signs of tularemia.
Availability:	Available after prior consultation with the Bioterrorism Response Laboratory.
Turnaround Time:	< 1 day to 7 days.
Sample:	Pure subculture for identification or confirmation, primary specimen for isolation and identification, swab of lesion, tissue biopsy (lymph node, spleen, liver) blood culture, sputum, tracheal, pleural or gastric aspirates. Culture of blood is not recommended as blood cultures seldom reveal the organism and when positive may take 7 to 21 days before positive.
Forms Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08.
Sample Container:	Subculture: Pure subculture growing on suitable slanted substrate. Use a screw-capped tube. Primary specimen: Commercial aerobic blood culture bottle for blood; sterile screw-capped tube collected with or without swab to collect exudates, fluids and tissues.
Sample Test Kit:	Provided by user.
Sample Collection:	Aseptic collection of tissue and body fluid.
Shipping Requirements:	Transport to the laboratory within 24 hours. For primary specimens other than blood, same day delivery is recommended. Submit the sample on coolant (prefrozen ice packs may be used). If same day delivery is not available priority overnight transport is recommended. Package primary specimens as "UN3373- Biological Substances, Category B". Package all pure subcultures or presumptive positive specimens as " UN2814-Infectious Substances Affecting Humans, Category A".
Comments:	Additional tests recommended: <i>Francisella tularensis</i> Serology.

Test Name:	<i>Francisella tularensis Serology</i>
Lab and Phone #:	Biologic Threat Laboratory 617-590-6390 (24hr/7days)
Special Instructions:	Notify the Bioterrorism Response Laboratory at the above number to report the identification, presumptive or otherwise, of this agent prior to transfer. Instructions for packaging presumptive positive specimens as a "UN3373-Biological Substances, Category B", or "UN2814- Infectious Substances Affecting Humans, Category A" will be reviewed over the phone prior to transfer to the SLI.

Use of Test:	To perform presumptive or confirmatory testing on human and/or suspect mammalian serum samples. Results may be used for purposes of confirming exposure (infection and vaccination) and for serosurveillance studies.
Test Includes:	Quantitative microagglutination test for assaying titer of homologous agglutinins.
Interpretation of Results:	Paired specimens taken during both the acute phase and the convalescent phase are recommended. Results of acute serum testing are considered preliminary. A rise in agglutination titer from the first to the second specimen is highly suggestive of tularemia. In the absence of paired specimens, a titer greater than or equal to 1:128 in the acute phase together with symptoms compatible with tularemia is suggestive of the disease. A significant titer is not attained until the second week of the disease and rises to a maximum in 4 to 6 weeks. A negative result does not preclude an active infection. Conversely, a positive result may not be diagnostic since the serum may exhibit a rise in heterologous agglutinins due to a different febrile infection. This test is useful for screening purposes but should not be used as a substitute for conventional isolation and identification of the etiological agent.
Limitations:	<ol style="list-style-type: none"> 1. The major limitation is that of interpretation. See Interpretation of Results above. 2. It is advisable to run several serum specimens taken at different times to detect quantitative differences in agglutinin content. 3. In some sera, cross-reactions may occur with <i>Brucella</i> antigens.
Availability:	Routinely run once a week. Special arrangements for immediate testing can be made for high priority cases.
Turnaround Time:	Routinely, 1 week maximum (see availability, above). The test procedure takes 24 hours to complete.
Sample:	Serum (see volume and collection, below).
Sample Volume:	Collect 5 to 10 mL of whole blood aseptically from patient.
Forms Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08.
Sample Container:	Sealed serum tube.
Sample Collection:	Allow blood to clot and obtain the syneresed serum with a Pasteur pipette. If serum is not free of erythrocytes, clarify by centrifugation. DO NOT HEAT. Specimen must be clear and free of visible fat. It must be free of excessive hemolysis and not bacterially contaminated.
Shipping Requirements:	Package specimens per instructions provided by Laboratory. Transport to the laboratory within 24 hours. Serum specimens less than or equal to 7 days from collection date should be stored and transported at 2-8°C. If shipping is delayed greater than 7 days from collection date, serum should be stored and shipped frozen.

Test Name: Fungal Serology
 See CDC Serology–Bacterial/Fungal/Protozoal.
 Reference Bacteriology Laboratory 617-983-6607

Test Name: German Measles
 See Rubella.

Test Name: Giardia lamblia (DFA)
 See Cryptosporidium species (DFA).

Test Name: Glanders
 See *Burkholderia mallei*, Culture and PCR.

Test Name:	Gonorrhea Culture
Lab and Phone #:	STD Bacteriology Laboratory 617-983-6600
Use of Test:	Screening and confirmation of <i>Neisseria gonorrhoeae</i> .
Test Includes:	DIAGNOSTIC TESTING ON PRIMARY CULTURES IS AVAILABLE ONLY ON SPECIMENS FROM ASSIGNED CLINICS: Assigned clinics are specific sites selected to monitor disease prevalence throughout the Commonwealth. Isolation and identification of <i>Neisseria</i> species recovered from primary cultures. Referred cultures for confirmation of <i>Neisseria gonorrhoeae</i> includes confirmatory testing on presumptive positive cultures (or oxidase positive cultures from clinics with limited testing capabilities) and genus and species identification on isolates referred for confirmation of <i>Neisseria gonorrhoeae</i> . Isolates of <i>Neisseria gonorrhoeae</i> are tested for susceptibility to ceftriaxone, ciprofloxacin, cefoxitin, azithromycin, cefpodoxime, and spectinomycin. Fluorescent Antibody (FA) confirmation for isolates from urogenital cultures that are not medico-legal cases. Confirmatory Cysteine Tryptose Agar (CTA) sugars for isolates from non-anogenital sources, on isolates from a child (<13 years old), and from medico-legal cases. Genus and species identification of any <i>Neisseria</i> species submitted as suspect for <i>Neisseria gonorrhoeae</i> . Since the estimated sensitivity of the culture is about 80% when all growth conditions are controlled, the major limitation is the quality of the specimen obtained and the handling of the specimen prior to receipt at the laboratory.
Limitations:	Monday through Friday.
Availability:	1 to 5 days.
Turnaround Time:	Primary culture on Thayer Martin (TM) slant or plate, or Referred culture for confirmation on TM agar slant.
Sample:	State Laboratory Specimen Submission Form, SS-SLI-1-08.
Forms Required:	Primary cultures should be maintained in a CO ₂ environment (candle extinction jar, Gonopak, etc).
Sample Container:	For Primary cultures: Swab from site of suspected infection is streaked on selective agar in a "Z" pattern (covering up to half of the plate), then cross-streaked, and incubated at 35°-36°C, under 2-10% CO ₂ for a minimum of 16 hours before transporting.
Sample Collection:	The gonococcus is normally found in the columnar epithelial cells lining the endocervical canal and the urethra. A swab is used to collect material from exposed genital, anal and/or oropharyngeal sites. "Exposed" sites should be determined both on examination and interview of the patient. The cervix (if present) is the site of infection in the female and the site to be cultured routinely. In hysterectomized women, the urethra is the primary site of infection.
Source:	Primary cultures: Within one hour of inoculating the specimen, incubate the culture plate at 35°C, in a 2-10% CO ₂ atmosphere, for a minimum of 16 hours prior to transporting to the STD Laboratory.
Incubation:	Referred cultures: Place 24 hour isolate on Thayer-Martin slant. Ship presumptive positive specimens at ambient temperatures, triple packaged, as a "UN3373-Biological Substances, Category B" to arrive the next day. If possible, transport referred cultures by same day courier service to the STD Laboratory.
Shipping Requirements:	Primary cultures: Primary cultures in a CO ₂ environment (candle extinction jar or Gonopak, etc.) must be delivered by same day courier to the STD Laboratory. If necessary, transport by USPS to arrive the next day. Triple package the specimen and mark the outer packing as "UN3373- Biological Substances, Category B".

Test Name: **Gonorrhea, *Neisseria gonorrhoeae*, Culture**
See Gonorrhea Culture.

Test Name:	Gram Negative Diplococci	
See Gonorrhea Culture for Confirmation of Presumptive Positive Referred Cultures.		
Lab and Phone #:	STD Bacteriology Laboratory	617-983-6600
Use of Test:	To determine the presence or absence of organisms resembling <i>Neisseria gonorrhoeae</i> . Results of direct smear examination of exudate from an eye should always be interpreted in conjunction with culture results. Use of the direct smear in eye sources can give a rapid indication of the presence of intracellular gram negative diplococci, resembling <i>Neisseria gonorrhoeae</i> .	
Test Includes:	Direct Smears: Examination of gram stained direct smear from <u>Eye</u> source only, submitted with culture from same source. See Gonorrhea Cultures for culture instructions. Prepare the culture from one side of the swab first and then prepare the slide from the remaining exudate.	
Normal Range:	Organisms resembling <i>Neisseria gonorrhoeae</i> not seen.	
Limitations:	Examination of gram stained direct smears does not confirm the presence of viable organisms. The results should be used as an adjunct to the results of the culture and clinical presentation. Differentiation of <i>Neisseria</i> species can be determined only by reactivity with specified biochemicals.	
Availability:	Monday through Friday.	
Turnaround Time:	One day for direct smear	
Sample:	Smear (the size of a dime) of swab from infected eye placed in the center of a 1x3 inch (12x75mm) microscope slide. Label frosted end of slide with patient's name and date of collection. Allow to air dry, place in slide transport container.	
Forms Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08.	
Sample Container:	Slide transport container provided by the user.	
Sample Collection:	Collect some of the exudate on the swab and place on microscope slide as described above under Sample.	
Shipping Requirements:	Send with accompanying culture to STD Laboratory. See Gonorrhea Culture for instructions to transport culture.	
Test Name:	<i>Haemophilus ducreyi</i>, Culture	
Lab and Phone #:	Reference Bacteriology Laboratory	617-983-6607
Special Instructions:	Due to the extreme growth requirements of this organism, call 617-983-6607 before submitting a specimen.	
Use of Test:	To confirm <i>Haemophilus ducreyi</i> .	
Test Includes:	The isolation and identification of <i>Haemophilus ducreyi</i> from a primary culture, genus and species identification of isolates referred for confirmation of <i>Haemophilus ducreyi</i> .	
Normal Range:	Negative for <i>Haemophilus ducreyi</i> .	
Limitations:	Sensitivity of the culture, in known endemic areas, is only about 50%. The delayed growth patterns are conducive to overgrowth with mold due to the saturated atmosphere. The special media (with Vancomycin) are not commercially available and have a limited shelf life of one week.	
Availability:	Monday through Friday.	
Turnaround Time:	5 to 10 days.	
Sample:	Swab of genital ulcer or aspirate of pus inoculated onto special media (Chocolate Agar with Vancomycin and/or Rabbit Blood Agar with Vancomycin). The media should contain both a source of hemin and serum and also incorporate vancomycin, which suppresses normal genital bacterial flora allowing the isolation of the slow growing <i>Haemophilus ducreyi</i> . Should the special media not be available, substitute GC Chocolate Agar (with 1% IsoVitaleX) as the primary culture plate. GC Chocolate agar, prepared according to a specific formulation has been shown to be more sensitive for the recovery of <i>Haemophilus ducreyi</i> than other formulations.	
Forms Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08	

Sample Container:	Candle extinction jar or other system to provide a source of CO ₂ (e.g., GonoPak system), provided by the user.
Sample Collection:	For Primary cultures: Swab from the base of the ulcer (chancre) and up around the indurated edges. Inoculate media with swab in a "Z" pattern (covering up to half of the plate), cross-streak the inoculum and incubate at 33°C, under 2-10% CO ₂ in an atmosphere that approximates 100% humidity, for a minimum of 48 hours before transporting.
Incubation:	Immediately after inoculation, place culture plate(s) into candle extinction jar with a wet paper towel on the bottom to obtain a water saturated atmosphere. Incubate at 33°C for 48 hours prior to moving from clinic site. If an incubation temperature of 33°C is not available, incubate at 35°C. Higher temperatures will kill the organism. Lower temperatures will retard growth and prolong the incubation time.
Shipping Requirements:	For Primary Cultures: deliver by courier, to the STD Laboratory. Use triple packaging system. Mark as "UN3373-Biological substances, Category B". For Referred Cultures: use triple packaging system, ship 24-48 hour isolate on GC Chocolate Agar slant at ambient temperature as "UN3373-Biological Substances, Category B" for next day arrival.
Comments:	Additional tests recommended: Concurrent testing should be performed to rule out the presence of etiological agents of other genital ulcers, especially syphilis and Herpes simplex.

Test Name:	<u><i>Haemophilus ducreyi, Direct Smear</i></u>
Lab and Phone #:	STD Bacteriology Laboratory 617-983-6600
Use of Test:	To detect the presence of <i>Haemophilus ducreyi</i> .
Test Includes:	Microscopic examination of gram stained direct smear for the presence of organisms resembling <i>Haemophilus ducreyi</i> .
Normal Range:	Organisms resembling <i>Haemophilus ducreyi</i> not seen.
Limitations:	Examination of gram stained direct smears does not confirm the presence of viable organisms. The results should be used as an adjunct to clinical presentation.
Availability:	Monday through Friday.
Turnaround Time:	1 to 5 days.
Sample:	Smear of swab from genital ulcer, chancre, or aspirate of pus, placed in the center of a 1x3 inch (12x75mm) microscope slide. Label frosted end of slide with patient's name and date of collection. Allow slide to air dry, place in slide transport container.
Forms Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08.
Sample Container:	Slide transport container provided by user.
Sample Collection:	Ulcer (chancre) specimens, swab from the base of the ulcer (chancre) and up around the indurated edges. Bubo specimens, obtain aspirate and place on slide as described above in Sample.
Shipping Requirements:	Use a triple packaging system, mark as "UN3373- Biological Substances, Category B". Place the slide into a transport container in a plastic zip lock bag and place within a padded envelope. Transport by USPS or Courier to the Laboratory.

Test Name: ***Haemophilus influenzae* Culture**

Lab and Phone #: **Reference Bacteriology Laboratory** **617-983-6607**

Use of Test: To serotype isolate for use in treatment selection, beta lactamase production and/or epidemiological studies.

Test Includes: Serotyping of *Haemophilus influenzae*.

Limitations: Testing performed only on organisms isolated from normally sterile sites unless prior consultation is arranged.

Availability: Monday through Friday.

Turnaround Time: 1 to 2 days.

Sample: Pure young culture on chocolate agar slant.

Forms Required: State Laboratory Specimen Submission Form, SS-SLI-1-08.

Shipping Requirements: Ship at room temperature. Using the triple packaging system for courier or USPS, mark outer packaging as "UN3373- Biological Substances, Category B".

Comments: **Additional tests recommended:** Prior correct identification of *Haemophilus influenzae* is required.

Test Name: **Hantavirus Antibody IgM and IgG**

Lab and Phone #: **Specimens Sent to CDC.**

Use of Test: **Virus Serology Laboratory** **617-983-6396**

Test Includes: Diagnosis of Hantavirus Pulmonary Syndrome.

Significant Result: Qualitative IgM capture EIA and IgG indirect EIA testing using the Sin Nombre Virus antigen.

Limitations: Positive IgM combined with noncardiogenic pulmonary edema or bilateral interstitial infiltrates confirm Hantavirus Pulmonary Syndrome.

Availability: May cross-react with other Hantaviruses.

Turnaround Time: Once per week.

Sample and Volume: Several weeks.

Forms Required: 2 mL of serum.

Sample Test Kit: State Laboratory Specimen Submission Form, SS-SLI-1-08.

Sample Collection: Provided by user.

Shipping Requirements: Acute serum collected 1-3 days after onset. See sample test kit for instructions. Use a triple packaging system for transporting to the SLI by Courier Service or by USPS. Mark the outer packing "UN3373- Biological Substances, Category B". Call the Virus Serology Laboratory to obtain a form required by CDC, specifically for the submission of Hantavirus specimens.

Comments:

Test Name: **Hemorrhagic colitis *E. coli* O157:H7**

See Enteric Pathogens, Referred Culture; Enteric Pathogens, Routine Culture.

Test Name: **Hepatitis B Surface Antibody**

Lab and Phone #: **HIV/Hepatitis Laboratory** **617-983-6389**

Use of Test: Detection of antibody to Hepatitis B surface antigen, for approved counseling and testing sites only.

Test Includes: Qualitative testing by a commercial enzyme immunoassay (EIA) procedure.

Significant Result: Positive for antibody to Hepatitis B surface antigen

Limitations: **Only approved sites may submit specimens.**

Availability: Monday through Friday

Turnaround Time: 2-14 days

Sample and Volume: Minimum of 1 mL serum or plasma

Forms Required: State Laboratory Specimen Submission Form, SS-SLI-1-08

Sample Test Kit: Hepatitis Specimen Kit. Call 617-983-6392.
Sample Collection: Routine blood draw. Serum separator tube preferred, though red top serum tubes are acceptable.
Shipping Requirements: Use triple packaging system for transporting by courier or USPS. Mark the outer packing "UN3373- Biological Substances, Category B".

Test Name: **Hepatitis C Antibody**
Lab and Phone #: **HIV/Hepatitis Laboratory** **617-983-6389**
Use of Test: Diagnosis of active Hepatitis C infection, for approved counseling and testing sites only.
Test Includes: Qualitative testing by a commercial enzyme immunoassay (EIA) procedure, with reflexive confirmatory immunoblot assay if indicated.
Significant Result: Positive for antibody to Hepatitis C virus.
Limitations: **Only approved sites may submit specimens.** Presence of antibody does not differentiate between past and current infection. Hepatitis C infection may be present even in the absence of detectable antibody.
Availability: Monday through Friday
Turnaround Time: 2-14 days
Sample and Volume: Minimum of 1mL serum or plasma
Forms Required: State Laboratory Specimen Submission Form, SS-SLI-1-08
Sample Test Kit: Hepatitis Specimen Kit. Call 617-983-6392.
Sample Collection: Routine blood draw. Serum separator tube preferred, though red top serum tubes are acceptable.
Shipping Requirements: Use triple packaging system for transporting by courier or USPS. Mark the outer packing "UN3373- Biological Substances, Category B".

Test Name: **Herpes Simplex Culture**
Lab and Phone #: **Virus Isolation Laboratory** **617-983-6853/ 6382**
Test Includes: Identification of herpes simplex types 1 and 2.
Special Instructions: Only samples having prior approval of the Virus Isolation Laboratory or from state affiliated institutions are accepted for testing.
Availability: As requested.
Turnaround Time: 2 to 10 days for positive report. 10 days for negative report.
Sample: Lesion swab (oral,skin), eye swab, cerebrospinal fluid, tissue, respiratory tract specimens.
Forms Required: State Laboratory Specimen Submission Form, SS-SLI-1-08.
Sample Test Kit: Provided by user.
Sample Collection: Call Laboratory, or see Instructions for Specimen Collection for Virus Testing.
Shipping Requirements: Transport to the laboratory within 24 hours at refrigerator temperatures. Use triple packaging system for transporting by Courier or the USPS. Mark the outer packing "UN3373- Biological Substances, Category B".
Comments: **Note:** Culture for additional viruses may be performed at the discretion of the laboratory.

Test Name: **Histoplasmosis Serology**
See CDC Serology–Bacterial/Fungal/Protozoal.
Reference Bacteriology Laboratory **617-983-6607**

Test Name:	HIV Antibody	
Lab and Telephone #:	HIV/Hepatitis Laboratory	617-983-6389
Use of Test:	Detection and confirmation of antibodies to Human Immunodeficiency Virus (HIV), the causative agent of AIDS. Testing is provided only for approved counseling and testing sites, or for reference testing or epidemiological studies.	
Significant Result:	HIV antibodies present.	
Test Includes:	Qualitative testing by a commercial enzyme immunoassay (EIA) procedure, followed by reflexive confirmatory testing as appropriate. Oral fluid (oral mucosal transudate) specimens are tested for HIV-1 antibodies. Serum specimens are tested for antibodies to HIV-1, HIV-2, and HIV-1 group O.	
Limitations:	<p>Only approved sites may submit specimens. This assay does not establish the presence of HIV virus. False negative results may occur for several weeks following exposure or in final stages of AIDS.</p> <p>Monday through Friday, 9:00 am to 5:00 pm.</p> <p>7 days.</p>	
Availability:	Minimum of 1 mL of serum or oral fluid.	
Turnaround Time:	HIV Laboratory Serum Sample Submission Form or Oral Fluid Sample Submission Form.	
Sample Volume:		
Forms Required:		
Sample Test Kit:	HIV Specimen Kit. Call 617-983-6392.	
Sample Collection:	<p>Informed consent must be obtained. Serum samples are collected by routine blood draw and must be submitted in a serum separator tube. Specimens must be centrifuged prior to submission. Oral fluid must be collected with an oral fluid specimen collection device. Specimens received with less than the minimum required volume are rejected. Specimens must be labeled with a barcode as the only identifier. The laboratory will not test any specimen received with a client's name, birth date or other personal identifiers. Specimen collection date <u>must</u> appear on the specimen submission form.</p> <p>Triple package specimens for transporting by Courier or USPS. Mark the outer packing "UN3373-Biological Substances, Category B".</p>	
Shipping Requirements:		

Test Name:	Influenza/ Parainfluenza Virus Culture and Subtyping	
Lab and Phone #:	Virus Isolation Laboratory	617-983-6853/ 6382
Test Includes:	Culture and typing/subtyping of primary specimens or isolates by Hemagglutination and IFA test.	
Limitations:	Occasionally, isolates testing positive off-site do not grow upon reinoculation. Isolates unable to be subtyped are tested for parainfluenza virus and/or influenza are sent to CDC for further identification.	
Availability:	As requested from October through May; contact the Laboratory prior to sending samples to the laboratory from June through September.	
Turnaround Time:	2 to 10 days.	
Sample:	Nasopharyngeal swab (preferred specimen), throat swab, bronchial wash, or other respiratory specimen and isolates exhibiting hemadsorption or any preliminary positive results by a rapid influenza test.	
Forms Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08	
Sample Test Kit:	Respiratory Virus Test kit. Call 617-983-6800 to order.	
Sample Collection:	Call Laboratory for sample collection instructions.	
Shipping Requirements:	Do not send by U.S.Mail. Call 617-983-6800 for courier pickup, or transport to laboratory within 24 hours using the prefrozen cold pack included with kit to keep refrigerated. Use triple packaging system for transport.	
Comments:	<p>Mark the outer package "UN3373- Biological Substances, Category B".</p> <p>Culture for additional viruses may be performed at the discretion of the laboratory.</p> <p>Hemadsorption positive or CPE positive isolates are tested by IFA test for typing/subtyping of Influenza/Parainflunza virus and by the Inhibition of Hemagglutination test for subtyping of influenza virus.</p>	

Test Name:	<u>Influenza, Molecular Typing PCR</u>	
Lab and Phone #:	Virus Isolation Laboratory	617-983-6853
Use of test:	Notify MDPH, BCDC Epidemiologists at 617-983-6800 (24 hour/7day) for all suspect pandemic, avian or novel influenza cases.	
Test includes:	Presumptive identification of Influenza H5 and H7 RNA from patients meeting suspect avian influenza criteria.	
Availability:	Rapid screening by Polymerase Chain Reaction (PCR) for presumptive identification of influenza types A, B and subtypes H1, H3, H5, and H7.	
Turnaround Time:	Available after prior consultation with MDPH Epidemiologists and Virus Isolation Laboratory staff.	
Sample:	< 1 day for presumptive positive report. H1 and H3 subtypes will be confirmed by in house conventional culture and subtyping. H5 and H7 subtypes will be confirmed by CDC.	
Forms Required:	Nasopharyngeal swab, and/or pharyngeal swab depending on the virus suspected.	
Sample Test Kit	State Laboratory Specimen Submission Form, SS-SLI-1-08	
Sample Collection:	Respiratory Virus Testing Kit Call 617-983-6800 to order kits.	
Shipping Requirements:	See instructions in Respiratory Virus Testing Kit	
Comments:	Do not send by U.S. Mail. Call 617-983-6800 for courier pick-up service, or transport to the laboratory within 24 hours on prefrozen cold pack included with kit to keep refrigerated. Use a triple packaging system for transporting by Courier.	
	Mark the outer packing "UN3373- Biological Substances, Category B".	
	Culture for additional viruses may be performed at the discretion of the laboratory.	
Test Name:	<u>Influenza, Rapid Culture</u>	
Lab and Phone #:	Virus Isolation Laboratory	617-983-6853/ 6382
Test Includes:	Isolation and typing of influenza virus by shell vials.	
Availability:	As requested from October through May; contact the laboratory prior to sending samples from June through September.	
Turnaround Time:	1 to 2 days for preliminary positive report. Positives are confirmed by conventional culture and subtyping.	
Sample:	Throat swab, nasopharyngeal swab, bronchial wash or other respiratory specimen.	
Forms Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08	
Sample Test Kit	Respiratory Virus Testing Kit Call 617-983-6800 to order kits.	
Sample Collection:	See instructions in Respiratory Virus Testing Kit	
Shipping Requirements:	Do not send by U.S. Mail. Call 617-983-6800 for courier pick-up service, or transport to the laboratory within 24 hours on prefrozen ice pack included with kit to keep refrigerated.	
	Use a triple packaging system for transporting by Courier.	
	Mark the outer packing "UN3373- Biological Substances, Category B".	
Comments:	Note: As this procedure is not as sensitive as conventional tissue culture, specimens testing negative are not reported until conventional culture results are finalized. Culture for additional viruses may be performed at the discretion of the laboratory.	

Test Name:	Influenza Virus, Rapid Test	
Lab and Phone #:	Virus Isolation Laboratory	617-983-6853/ 6382
Test Includes:	Identification of specimens for influenza A and B antigen.	
Availability:	Performed at the request of an Epidemiologist on Fridays or days proceeding Holidays from October through May. Contact the laboratory prior to submitting samples from June to September.	
Turnaround Time:	1 day for preliminary positive report. Positives are confirmed by conventional culture and subtyping.	
Sample:	Throat swab or nasopharyngeal swab.	
Forms Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08	
Sample Test Kit:	Respiratory Virus Testing Kit Call 617-983-6800 to order kits.	
Sample Collection:	See instructions in Respiratory Virus Testing Kit	
Shipping Requirements:	Do not send by U.S. Mail. Call 617-983-6800 for courier pick-up service, or transport to the laboratory within 24 hours on prefrozen ice pack included with kit to keep refrigerated. Use a triple packaging system for transporting by Courier.	
Comments:	Mark the outer packing "UN3373- Biological Substances, Category B". Note: As this procedure is not as sensitive as conventional tissue culture, specimens testing negative are not reported until conventional culture results are finalized. Culture for additional viruses may be performed at the discretion of the laboratory.	
Test Name:	Lead, Dust Wipes (Samples submitted by licensed Lead Inspectors only)	
Lab and Phone#:	Environmental Chemistry Laboratory	617-983-6657
Use of Test:	To determine the efficacy of and monitor post abatement clean up.	
Method of Analysis:	Acid extraction followed by flame atomic absorption spectroscopy.	
Allowable Limits:	Floor 40 µg/ft ² , Window Sill 250 µg/ft ² , Window Well 400 µg/ft ²	
Turnaround Time:	3 to 10 days	
Forms Required:	Dust Sample Submission Form, complete with documentation of provider, occupant of dwelling, and source of samples.	
Sample Container:	50 mL, polypropylene, conical tubes.	
Sample Test Kit:	Call the laboratory to obtain sample collection kit and instructions prior to sample collection.	
Shipping Requirements:	Ship in an appropriate box or padded mailer. Package, mark and label properly to avoid sample loss during delivery.	
Fee:	None.	
Test Name:	Lead, Paint Chips	
Lab and Phone#:	Environmental Chemistry Laboratory	617-983-6657
Use of Test:	To monitor paint as possible source of lead exposure.	
Method of Analysis:	Microwave digestion followed by flame atomic absorption spectroscopy.	
Allowable Limits:	Lead-based paints for interior application must contain less than 0.5% by weight lead.	
Turnaround Time:	3 to 10 working days.	
Sample Volume:	1.0 gram	
Forms Required:	Paint Sample Submission Form, complete with documentation of provider, occupant of dwelling, and source of samples. Call laboratory for copy of form.	
Container:	Submit in clean, zip-lock plastic bag.	
Sample Collection:	Call the laboratory for sampling instructions prior to collection.	
Shipping Requirements:	Use a padded mailer.	
Fee:	\$ 30 per sample. Fee waived for families of lead poisoned children.	

Test Name:	<u>Lead, Pottery</u>	
Lab and Phone #:	Environmental Chemistry Laboratory	617-983-6657
Use of Test:	To test for potential of lead toxicity from pottery or dinnerware used for food preparation or eating purposes. Items sent for analysis must be intact and not chipped, cracked or broken.	
Method of Analysis:	Acid extraction followed by flame atomic absorption spectroscopy.	
Test Includes:	Dinnerware, glassware, mugs, cups and other eating and drinking utensils.	
Allowable Limits:	All pottery, dinnerware and glassware must contain less than 2 ppm leachable lead under the Massachusetts Lead Law.	
Turnaround Time:	5 to 10 working days	
Forms Required:	Miscellaneous Sample Submission Form with complete documentation of provider and manufacturer as well as a description of and source of the item. Call the laboratory for a copy of the form.	
Shipping Requirements:	Wrap all items well with bubble wrap or paper before shipping. Mark "Fragile, Hand Cancel" or "Handle with Care" on the outside of the package. The laboratory is not responsible for broken or damaged items.	
Fee:	\$ 120 /sample. Fee waived for the families of lead poisoned children.	

Test Name:	<u>Lead, Soil</u>	
Lab and Phone#:	Environmental Chemistry Laboratory	617-983-6657
Use of Test:	To monitor soil as a possible source of lead toxicity.	
Method of Analysis:	Microwave digestion followed by flame atomic absorption spectroscopy.	
Allowable Limit:	EPA Guidelines, 400 mg/kg	
Turnaround Time:	3 to 10 working days.	
Sample Volume:	One cup or more of a composite soil sample.	
Forms Required:	Soil Sample Submission Form complete with documentation of provider, occupant of dwelling and source of samples. Call the laboratory for a copy of the form.	
Sample Container:	Submit samples in individual clean, zip-lock plastic bags.	
Sample Collection:	Call laboratory for sampling instructions prior to collection.	
Shipping Requirements:	Ship to the laboratory in an appropriate sized durable box. Mark, label and secure the box properly to avoid sample loss during delivery.	
Fee:	None.	

Test Name:	<u>Lead, Urine</u> (for research purposes only).	
Lab and Phone #:	Childhood Lead Screening Laboratory	617-983-6650
Use of Test:	To monitor lead excretion.	
Method of Analysis:	Acid extraction followed by graphite furnace atomic absorption spectroscopy.	
Acceptable Range:	1 to 13 µg/L	
Turnaround Time:	10 working days.	
Sample Volume:	100 mL	
Sampling Instructions:	Call laboratory for sampling instructions and container.	
Forms Required:	Childhood Lead Screening Specimen Submission Form, CLSL1 (09/03).	
Sample Container:	Trace metal free urine specimen collection container.	
Sample Collection:	First void sample or an aliquot of a 24-hour urine collection. Measure and record the volume on required laboratory form.	
Shipping Requirements:	Keep sample refrigerated before mailing. Sample must be submitted to the laboratory for preservation within 24 hours of collection. Secure container to avoid sample loss. Package to ensure safe delivery and label outer packing "Exempt Human Specimen".	
Fee:	\$ 45 per sample. Fee waived for families of lead poisoned children.	
Comments:	Additional test recommended: Blood Lead.	

Test Name:	<u>Lead, Water</u>	
Lab and Phone:	Environmental Chemistry Laboratory	617-983-6657
Use of Test:	To measure lead in drinking water as a possible source of exposure.	
Method of Analysis:	Acid extraction followed by graphite furnace atomic absorption spectroscopy.	
Allowable Limits:	15 micrograms per liter (ug/L) or less.	
Turnaround Time:	7 to 10 days	
Sample Volume:	Three 1000-mL compliance samples, collected over time, (standing, two minutes running and five minutes running).	
Forms Required:	Drinking Water Submission Form containing documentation of provider, occupant, water source, and exact location of tap. Call the laboratory for a copy of the form.	
Sample Test Kit:	EPA approved containers packaged for chain-of-custody supplied by laboratory.	
Sample Collection:	See complete instructions in test kit for collecting compliance samples.	
Shipping Requirements:	Secure covers to containers to prevent any leakage. Ship to laboratory in carton provided within 10 days of collection. Carton must have labels of orientation and handling to ensure safe delivery.	
Fee:	\$ 80.00 per kit. Each kit includes 3 containers for collection of compliance samples. Testing fees are waived for families of lead poisoned children.	
Test Name:	<u>Lead, Whole Blood, Capillary Fingerstick</u>	
Lab and Phone #:	Childhood Lead Screening Laboratory	617-983-6665
Use of Test:	Identification and monitoring of children with elevated lead body burden.	
Method of Analysis:	Graphite furnace atomic absorption spectroscopy.	
Acceptable Range:	Children 0 to 9µg/dL	
Turnaround Time:	2 working days.	
Sample and Volume:	150 µL whole blood; collect with EDTA, heparin is also acceptable.	
Sampling Instructions:	Call laboratory, or use specimen collection instruction form with kit.	
Forms Required:	Childhood Lead Screening Specimen Submission Form, CLSL1 (09/03).	
Sample Collection Kit:	Microcuvette capillary collection system with EDTA.	
Comments:	Call laboratory to order supplies. Use biohazard stickers on primary receptacles.	
Shipping Requirements:	Keep samples refrigerated before submitting. Avoid exposing samples to extreme temperatures during shipping. Blood samples sent to the laboratory by courier or through the US mail must comply with the United States Postal Service and Department of Transportation Regulations for "Exempt Human Specimens".	
Comments:	See the Centers for Disease Control guidelines for the interpretation of Lead (Pb) and Zinc Protoporphyrin (ZnPP) blood levels at http://www.cdc.gov/nceh/lead/publications/pub_Reas.htm	
Test Name:	<u>Lead, Whole Blood, Venous Blood</u>	
Lab and Phone #:	Childhood Lead Screening Laboratory	617-983-6665
Use of Test:	Identification and monitoring of children with elevated lead body burden.	
Method of Analysis:	Graphite furnace atomic absorption spectroscopy.	
Acceptable Range:	Children 0 to 9µg/dL; Adults 0 to 40 ug/dL	
Turnaround Time:	2 working days.	
Sample and Volume:	2 mL of whole blood collected in EDTA, (lavender top tube). Although heparin, (green stopped tube) is acceptable, EDTA is the preferred anticoagulant .	
Sampling Instructions:	Call the laboratory or use specimen collection instruction form with kit.	
Forms Required:	Childhood Lead Screening Specimen Submission Form, CLSL1 (09/03).	
Sample Container:	2 mL (Pediatric), Vacutainer tube, plastic, lavender top (containing EDTA)	
Comments:	Use biohazard stickers on primary receptacles.	
Shipping Requirements:	Keep samples refrigerated before mailing. Avoid exposing samples to extreme temperatures during shipping. Blood samples sent to the laboratory by courier or through the US mail must comply with the United States Postal Service and Department of Transportation Regulations for "Exempt Human Specimens".	
Comments:	See the Centers for Disease Control guidelines for the interpretation of Lead and Zinc Protoporphyrin blood levels at http://www.cdc.gov/nceh/lead/publications/pub_Reas.htm	

Test Name:	<u>Legionella Culture</u>	
Lab and Phone #:	Reference Bacteriology Laboratory	617-983-6607
Use of Test:	To confirm a diagnosis of Legionnaire's Disease in the acute phase of illness.	
Test Includes:	Subculture identification, confirmation, and serogrouping as well as isolation and identification of <i>Legionella</i> spp. from lung tissue, pleural fluid, transtracheal aspirate, and lower respiratory secretions (sputum bronchial wash etc.).	
Limitations:	Sputum, transtracheal aspirate and lung tissue have the highest yield. Pleural fluid has the lowest yield. Soluble antigen studies on all specimens are not offered.	
Availability:	Monday through Friday.	
Turnaround Time:	4 to 10 days.	
Sample:	Lung tissue, pleural fluid, transtracheal aspirate, and lower respiratory secretions (sputum bronchial wash etc.).	
Forms Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08.	
Sample Test Kit:	Legionella Specimen Kit, available on request at 617-983-6640.	
Sample Collection:	Coolant provided by the user.	
Shipping Requirements:	Collect pea-sized piece of tissue or 5 to 30 mL of secretions. Specimens should be held at 4-8° C and should not be allowed to dry out. Add a small amount of sterile distilled water to lung tissue if necessary. Do not use sterile saline for specimen collections as <i>Legionella</i> spp. are inhibited by saline.	
Comments:	Same day transport by courier is recommended. If same day transport is not possible, freeze the specimen and send it overnight priority mail in a triple packaged system with dry ice. Mark package as "UN3373- Biological Substances, Category B".	
	Additional tests recommended: <i>Legionella</i> Serology.	

Test Name:	<u>Legionella Serology</u>	
Lab and Phone #:	Virus Serology Laboratory	617-983-6396
Use of Test:	To support a diagnosis of Legionnaires disease retrospectively during the convalescent phase of illness.	
Test Includes:	Quantitative IFA testing for IgG antibody to Legionella.	
Significant Result:	Seroconversion or a four-fold rise in titer between acute and convalescent sera.	
Limitations:	Varying background levels of antibody in the general population make it difficult to support a diagnosis based on a single serum titer.	
Availability:	As requested	
Turnaround Time:	2 to 5 days upon receipt of convalescent serum.	
Sample and Volume:	2 mL of serum, no additives.	
Forms Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08.	
Sample Test Kit:	Provided by user.	
Sample Collection:	Collect acute sample during first week of illness and convalescent sample 10 to 14 days after the acute sample. Routine blood draw, no preservatives. Requisition must state date of collection and onset of illness. Collect acute during first week of illness and convalescent 3-6 weeks post-onset	
Shipping Requirements:	Triple package the specimen for transport by Courier or USPS. Mark outer package "UN3373- Biological Substances, Category B".	
Comments:	Additional tests recommended: <i>Legionella</i> Culture.	

Test Name:

Leishmaniasis Serology

See CDC Serology–Bacterial/Fungal/Protozoal.
Reference Bacteriology Laboratory 617-983-6607

Test Name:

Leptospirosis Serology

See CDC Serology–Bacterial/Fungal/Protozoal.
Reference Bacteriology Laboratory 617-983-6607

Test Name:

Listeria monocytogenes Culture

Reference Bacteriology Laboratory **617-983-6607**

Epidemiological studies.

Confirmation of isolate. Additional studies (PFGE) may be performed.

Monday through Friday.

3 to 7 days.

Pure, actively growing culture on agar slant.

State Laboratory Specimen Submission Form, SS-SLI-1-08.

Triple package the specimen as an “UN3373- Biological Substances, Category B”.

For transport by Courier or USPS.

Test Name:

Listeria monocytogenes Isolation, Food

Food Bacteriology Laboratory **617-983-6610**

To support epidemiologic evidence implicating a food as a possible source of illness. Food samples must be submitted through local or state public health agencies and implicated in an outbreak (one or more ill consumers). The laboratory should be notified by phone prior to submission. Include the source of the sample and any other pertinent information on the submission form.

Isolation and identification of *Listeria monocytogenes* and an organoleptic examination.

Foods will be examined for *Listeria* only if the clinical and epidemiologic information is compatible with *Listeria* foodborne disease.

Monday through Friday.

3 to 12 days.

At least 100 grams would be preferable but lesser amounts are acceptable.

Food Bacteriology Specimen Submission Form. Forms are obtainable through the Food Microbiology Laboratory 617-983-6610, MDPH Division of Food and Drugs, Food Protection Program 617-983-6712, and the local Board of Health. Original sample container as submitted by inspector or other sterile leak proof container.

Collect food aseptically and place in sterile whirlpack bags or other sterile, leak proof container. Keep all samples refrigerated except samples received frozen which should be maintained in the frozen state.

Transport or ship samples on ice (prefrozen ice packs) in appropriate packaging.

Test Includes:

Limitations:

Availability:

Turnaround Time:

Sample and Volume:

Forms Required:

Sample Container:

Sample Collection:

Shipping Requirements:

Test Name:	Lyme Disease, Western Blot IgM and IgG
Lab and Phone #:	Virus Serology Laboratory 617-983-6396
Use of Test:	To confirm a diagnosis of Lyme disease as a follow-up positive to a screening assay.
Test Includes:	Separate confirmatory Western Blot tests for IgM and IgG antibody to <i>Borrelia burgdorferi</i> .
Significant Result:	IgM greater than or equal to 2 significant bands. IgG greater than or equal to 5 significant bands.
Limitations:	Western Blot testing is recommended only on patients who have positive or equivocal EIA or IFA test results. Western Blot testing should not be performed as screening procedure for the general population. The predictive accuracy of a positive or negative Western Blot result depends on the likelihood of Lyme disease being present. The continued presence or absence of antibodies cannot be used to determine the success or failure of therapy. IgM serologic positivity should be considered only if the specimen was obtained less than 30 days post disease onset.
Availability:	Weekly.
Turnaround Time:	2 to 7 days.
Sample and Volume:	2 mL of serum.
Forms Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08.
Sample Test Kit:	Provided by user.
Sample Collection:	Routine blood draw, use no preservatives.
Shipping Requirements:	Triple package for transport by Courier or USPS. Mark as "UN3373- Biological Substances, Category B".
Comments:	Reactive screening results required for Immunoblot to be preformed. An IgG blot is considered positive if five of the following ten bands are present: 18, 23 (OspC), 28, 30, 39, 41 (Flagellin), 45, 58, 66 and 93kDa. An IgM blot is considered positive if two of the following three bands are present: 23 (OspC), 39, and 41 (flagellin) kDa.

Test Name:	Lymphocytic Choriomeningitis (LCM) Virus Culture and Serology
Lab and Phone #:	Virus Isolation Laboratory 617-983-6853/ 6382
Special Instructions:	Virus Serology Laboratory 617-983-6396 CONTACT LABORATORY PRIOR TO SHIPPING SECIMENS Samples are sent to CDC.
This is a CDC referral test requiring at least 0.5 ml of cerebrospinal fluid and 3 mL of serum. The CDC will perform antibody testing on the serum and cerebrospinal fluid. Based on these results, CDC may elect to perform LCM culture testing or may determine that LCM culture testing is not warranted. Clinical information, including any known rodent exposure is required. Alternatively, LCM serology, requiring only serum, may be requested. See CDC Serology -Viral/ Other.	
Test Includes:	LCM culture is performed by CDC at their discretion following antibody testing.
Turnaround Time:	Varies with referral.
Sample and Volume:	Minimum of 0.5 mL of cerebrospinal fluid and 3 mL of serum.
Forms Required:	Brain tissue may be acceptable following CDC consultation.
Sample Test Kit:	State Laboratory Specimen Submission Form, SS-SLI-1-08.
Sample Collection:	Provided by user.
Shipping Requirements:	Call Laboratory for instructions. Transport to the laboratory within 24 hours at refrigerator temperature. Triple package the specimen for transport by Courier or USPS as "UN3373- Biological Substances, Category B".

Test Name:	Malaria, Direct Smear	
Lab and Phone #:	Shipped to CDC with prior arrangement.	
Use of Test:	Reference Bacteriology Laboratory	617-983-6607
Limitations:	Diagnosis of malaria or speciation of an etiologic agent.	
Turnaround Time:	Proper collection and staining.	
Sample:	2 to 4 weeks.	
Forms Required:	Thick and thin blood smears.	
Sample Container:	State Laboratory Specimen Submission Form, SS-SLI-1-08.	
Shipping Requirements:	Provided by user.	
	Triple package the specimen for transport as "UN3373- Biological substance, Category B".	
 Test Name:	 Malaria Serology	
	See CDC Serology–Bacterial/Fungal/Protozoal.	
	Reference Bacteriology Laboratory 617-983-6607	
 Test Name:	 Measles Antibody IgM	
Lab and Phone #:	Virus Serology Laboratory	617-983-6396
Use of Test:	Early diagnosis of measles infection.	
Test Includes:	Measles IgM Capture EIA.	
Significant Result:	Positive IgM indicates current or recent measles infection. Negative IgM, Positive Total Antibody (see Measles IFA test) indicates probable non-measles rash. Negative IgM, Negative Total Antibody indicates probable non-measles rash or sample collected too early, convalescent specimen should be submitted to rule out measles infection.	
Limitations:	IgM may be negative if the specimen is collected prior to the appearance of or Before the third day after rash onset. Cannot distinguish between antibody produced In response to vaccine versus wild strain measles.	
Availability:	As requested	
Turnaround Time:	1 to 3 days.	
Sample and Volume:	2 mL of serum.	
Forms Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08.	
Sample Test Kit:	Provided by user.	
Sample Collection:	Acute serum collected 3 to 7 days after appearance of rash.	
Shipping Requirements:	Triple package the specimen for transport by Courier or USPS. Mark as "UN3373- Biological Substances, Category B".	
Comments:	Additional tests recommended: Contact MDPH, BCDC, Division of Epidemiology at 617-983-6800 to report all suspect measles cases. Rubella IgM testing for differential diagnosis may be performed at the discretion of the laboratory.	
 Test Name:	 Measles Antibody IgG IFA	
Lab and Phone #:	Virus Serology Laboratory	617-983-6396
Use of Test:	Serodiagnosis of recent measles infection.	
Test includes:	Quantitative IFA testing for IgG antibodies to measles.	
Significant Result:	Seroconversion or four-fold increase in titer.	
Availability:	As required.	
Turnaround Time:	2 days upon receipt of convalescent serum.	
Sample and Volume:	2 mL of serum, no additives	
Form Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08.	
Sample Test Kit:	Provided by user.	
Sample Collection:	Collect acute during first week of illness and convalescent 10-14 days after the acute.	
Shipping Requirements:	Use triple packaging system for Courier or USPS. Mark outer packaging as "UN3373- Biological Substances, Category B".	
Comments:	Additional tests recommended: Measles IgM. Contact MDPH, BCDC, Division of Epidemiology at 617-983-6800 to report all suspect measles cases.	

Test Name:	Measles Virus Culture	
Lab and Phone #:	Virus Isolation Laboratory	617-983-6853/ 6382
Limitations:	Measles virus is rarely isolated from clinical specimens. IgM serology is the recommended test for measles diagnosis.	
Availability:	As requested	
Turnaround Time:	21 days for negative report. Positive reports are available in less time.	
Sample:	Throat and/or nasopharyngeal swab (combined specimens preferred), urine.	
Forms Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08.	
Sample Test Kit:	Provided by user.	
Sample Collection:	Call the laboratory for sample collection instructions.	
Comments:	<p>Shipping Requirements: Triple package the specimen for transport. Mark outside package "UN3373- Biological Substances, Category B".</p> <p>Additional tests recommended: IgM serology is the recommended test for measles diagnosis. Parvovirus and Rubella antibody testing may be necessary for differential diagnosis. Contact MDPH, BCDC, Division of Epidemiology at 617-983-6800 to report all suspect measles cases.</p> <p>Note: Culture for additional viruses may be performed at the discretion of the laboratory.</p>	

Test Name:	Melioidosis	
	See <i>Burkholderia pseudomallei</i> , Culture and PCR.	

Test Name:	Mercury, Urine (for research purposes only).	
Lab and Phone #:	Environmental Chemistry Laboratory	617-983-6657
Use of Test:	To measure acute mercury exposure.	
Method of Analysis:	Extraction followed by flow injection atomic spectroscopy.	
Normal Range:	5 ug/g creatinine	
Toxic Concentration:	>35 ug/grams creatinine	
Turnaround Time:	10 working days.	
Sample Volume:	100 mL	
Sampling Instructions:	Call laboratory for sampling instructions and container.	
Forms Required:	Proper documentation of provider, patient and sample source.	
Container:	Trace metal free urine specimen collection container.	
Collection:	First void sample or an aliquot of 24-hour collection. Measure and record the volume on the required laboratory form.	
Shipping Requirements:	Sample must be submitted to the laboratory for preservation within 24 hours of collection. Secure container to avoid sample loss. Package and label properly to ensure safe delivery.	
Comments:	All trace metal levels in urine are corrected for creatinine.	

Test Name:	Monkeypox, PCR	
Lab and Phone #	Virus Isolation Laboratory	617-983-6853/ 6382
Special Instructions:	<p>Notify MDPH Epidemiologists at 617-983-6800 (24hour /7day) to report all pustular rash illness symptoms suspicious for monkeypox virus. Prior to shipping specimens, call the Virus Isolation Laboratory to verify instructions for packaging and shipping prior to transport to the SLI. Instruct the courier to call the Laboratory upon arrival of the specimen.</p>	
Use of Test:	Presumptive identification of monkeypox virus.	
Test Includes:	Rapid screening by polymerase chain reaction (PCR) for presumptive identification of monkeypox virus performed on a case-by-case basis. Confirmatory testing performed by CDC.	
Normal Range:	Nucleic Acid not detected for Monkeypox virus.	
Availability:	Available after prior consultation with the Virus Isolation Laboratory.	

Turn Around Time: 6 to 48 hours.
Sample: Primary specimen for isolation and identification, blood culture, urine, tissue aspirates and fluids.

Forms Required: Pure subculture for identification or confirmation
Sample Container: State Laboratory Specimen Submission Form, SS-SLI-1-08.
Sample Collection: Vesicular/Pustular rash illness specimen collection kit. Call 617-983-6800.
Shipping Requirements: Vesicular material, scab specimens, biopsy lesions. See instructions in test kit.
Arrangements should be made with MDPH Epidemiologists at 617-983-6800 for transport of patient specimens at 4°C to the Laboratory.
Package as "UN3373- Biological Substances, Category B" specimen.

Test Name: **Mucormycosis Serology**
See CDC Serology–Bacterial/Fungal/Protozoal.
Reference Bacteriology Laboratory **617-983-6607**

Test Name: **Mumps Antibody IgG IFA**
Lab and Phone #: **Virus Serology Laboratory** **617-983-6396**
Use of Test: Serodiagnosis of mumps infection.
Significant Result: Seroconversion or four-fold increase in titer.
Availability: As requested
Turnaround Time: 2 to 5 days upon receipt of convalescent serum.
Sample and Volume: 2 mL of serum.
Forms Required: State Laboratory Specimen Submission Form, SS-SLI-1-08.
Sample Test Kit: Provided by user.
Sample Collection: Acute and convalescent serum. Call Laboratory or see Instructions for Submitting Specimen for Virus Serology Form.
Shipping Requirements: Transport to the laboratory within 24 hours at refrigerator temperature. Triple package the specimen for transport by Courier or by the USPS as an "UN3373- Biological Substances, Category B".
Comments: **Additional tests recommended:** Mumps IgM. Contact MDPH, BCDC, Division of Epidemiology at 617-983-6800 to report all suspect mumps cases.

Test Name: **Mumps Antibody IgM**
Lab and Phone #: **Virus Serology Laboratory** **617-983-6396**
Use of Test: Early diagnosis of mumps infection
Test Includes: Mumps IgM EIA Assay
Significant Result: Positive IgM indicates probable current or recent mumps infection. Negative IgM indicates probable non-mumps cause or possibility that the specimen was collected too early.
Limitations: 30% of primary mumps may be sub-clinical. Mumps infection can occur without parotitis. Parotid swelling may have other viral/bacterial causes (Coxsackie, Echo, Parainfluenza, Influenza A, Herpes Simplex, Herpes Zoster Virus, and *S.aureus*)
Parotid pain or swelling may have non-infectious cause.
Availability: As requested
Turnaround Time: 1 to 3 days
Sample and Volume: 2 mL of serum, no additives
Form Required: State Laboratory Specimen Submission Form, SS-SL-1-05
Sample Test Kit: Provided by user.
Sample Collection: Acute serum collected within the first week of illness. Convalescent, if needed, 10 to 14 days later.
Shipping Requirements: Use appropriate triple packaging system for courier or USPS. Mark outer packaging as "UN3373- Biological Substances, Category B".

Comments: **Additional tests recommended:** Mumps culture. Contact MDPH, BCDC, Division of Epidemiology at 617-983-6800 to report all suspect mumps cases.

Test Name: **Mumps Antibody IgM and IgG EIA**
Lab and Phone #: Specimens sent to CDC
Virus Serology Laboratory 617-983-6396
Specimen sent to CDC
Use of Test: Specimen sent to CDC
Early diagnosis of mumps infection.
Test Includes: **Mumps IgM and IgG EIA performed at CDC.**
Positive IgM indicates probable current or recent mumps infection. Negative IgM and positive or negative IgG indicates probable non-mumps cause or possibility that the specimen was collected too early.
Significant Result:
(1) 30% of primary mumps may be sub-clinical. (2) Mumps infection can occur without parotitis. (3) Parotid swelling may have other viral/bacterial causes (Coxsackie, Echo, Parainfluenza, Influenza A, Herpes Simplex and Zoster, and *S. aureus*). (4) Parotid pain or swelling may have a non-infectious cause.
Limitations:
Availability: Sent upon request.
Turnaround Time: At least 3 weeks.
Sample and Volume: 2 mL of serum.
Forms Required: State Laboratory Specimen Submission Form, SS-SLI-1-08.
Sample Test Kit: Provided by user.
Sample Collection: Acute serum collected 2 to 14 days post onset. Convalescent, if needed, 2 to 3 weeks later.
Shipping Requirements: Triple package the specimen for transport by Courier or USPS. Mark outer package "UN3373- Biological Substances, Category B".
Comments: **Additional tests recommended:** Mumps culture. Contact MDPH, BCDC, Division of Epidemiology at 617-983-6800 to report all suspect mumps cases.

Test Name: **Mumps Culture**
Lab and Phone #: Virus Isolation Laboratory 617-983-6853/ 6382
Availability: As requested
Turnaround Time: 5 to 15 days.
Sample: Saliva, throat swab, urine, cerebrospinal fluid, and tissue.
Forms Required: State Laboratory Specimen Submission Form, SS-SLI-1-08.
Sample Test Kit: Provided by user.
Sample Collection: Call the laboratory for sample collection instructions.
Shipping Requirements: Triple package the specimen for transport by Courier or by the USPS. Mark outer package "UN3373- Biological Substances, Category B".
Comments: **Additional Tests Recommended:** Mumps serology testing is also available. Contact MDPH, BCDC, Division of Epidemiology at 617-983-6800 to report all suspect mumps cases.
Note: Culture for additional viruses may be performed at the discretion of the laboratory.

Test Name: **Murine Typhus Antibody**
See CDC Serology- Bacterial/ Fungal/ Protozoal.
Reference Bacteriology Laboratory 617-983-6607

Test Name:	Mycobacteria spp. Stock Culture	
Lab and Phone#:	Mycobacteriology Laboratory	617-983-6381
Use of test:	Cultures may be used for quality control, teaching, for research or for reference purposes.	
Special Instructions:	Call the laboratory for instructions.	
Test Includes:	Pure culture of most of the Mycobacteria isolated from clinical specimens.	
Limitations:	Limited to organisms available.	
Availability:	Monday through Friday.	
Turnaround Time:	2 weeks.	
Forms Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08.	
Sample Test Kit:	TB Culture Kit for "UN-2814- Infectious Substance Affecting Humans, Category A.	
Shipping Requirements:	If the organism being shipped has been definitively identified (both genus and species are known) and being submitted as a referred culture, laboratory stock culture or control material, triple package the specimen as an "UN2814-Infectious Substance Affecting Humans, Category A".	

Test Name:	Mycobacteriology CDC Identification
	See CDC Culture Identification, Mycobacteriology.

Test Name:	Mycobacteriology, M. avian complex (MAC) Identification by Non-nucleic Acid Probe	
Lab and Phone#:	Mycobacteriology Laboratory	617-983-6381
Use of test:	Identification of <i>M. avium</i> complex isolates.	
Test Includes:	Confirmation or identification of <i>M. avium</i> complex by Genprobe Accuprobe.	
Availability:	Tuesday through Friday.	
Turnaround Time:	1 day for grown isolates and up to 1 month if isolation is necessary.	
Sample and Volume:	Positive AFB culture, either solid or liquid is acceptable.	
Forms Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08.	
Sample Container:	TB Culture Kit.	
Shipping Requirements:	These specimens include reference cultures and patient presumptive positive samples from hospital laboratories. Triple package and ship these specimens by Courier or USPS as "UN3373- Biological Substances, Category B".	

Test Name:	Mycobacteriology, <i>Mycobacterium tuberculosis</i> Direct (MTD)	
Lab and Phone #:	Mycobacteriology Laboratory	617-983-6381
Use of Test:	To determine, by using nucleic acid amplification, in vitro diagnostic detection of <i>Mycobacterium tuberculosis</i> complex rRNA in acid-fast (AFB) smear positive concentrated sediments prepared from sputum, bronchial specimens or tracheal aspirates. Other types of specimens are tested by request on a research basis.	
Special Instructions:	Contact the laboratory before submitting specimen to arrange for testing. Patient specimens must be decontaminated within 24 hours after collection. Sediments must be analyzed within 72 hours after decontamination.	
Limitations:	Only for the detection of members of the <i>Mycobacterium tuberculosis</i> complex using sediments prepared following the NALC-NaOH and NaOH procedures recommended by CDC. MTD is specific for, but does not differentiate among, members of the <i>M. tuberculosis</i> complex. A negative test does not exclude the possibility of isolating an <i>Mycobacterium tuberculosis</i> complex organism from the specimen. MTD should always be performed in conjunction with mycobacterial culture. This test is for first time, smear positive patients that have not had a previous <i>Mycobacterium tuberculosis</i> complex infection.	
Availability:	Monday through Friday.	

Turnaround Time: 24 to 48 hours.
Sample: Patient specimen or sediment of a sputum, bronchial specimen or tracheal aspirate. Other types of specimens are tested by request on a research basis.
Forms Required: State Laboratory Specimen Submission Form, SS-SLI-1-08.
Sample Test Kit: TB Culture Kit.
Comments: Additional tests recommended: Mycobacteriology culture.
Shipping Requirements: Use a triple packaging system for transporting by Courier or USPS. Mark the outer packing "UN3373- Biological Substances, Category B".

Test Name: **Mycobacteriology (TB) Identification, Referred Culture**
Lab and Phone #: **Mycobacteriology Laboratory** 617-983-6381
Use of Test: To determine the species of mycobacteria.
Test Includes: Confirmation or identification to the complex or species level by Genprobe Accuprobe, and/or biochemical testing.
Limitations: Pure isolate. Mixed or contaminated cultures may take longer and identification may not be possible. Liquid cultures are acceptable.
Availability: Tuesday through Friday.
Turnaround Time: 1 day to one month.
Sample: Pure isolate.
Form Required: State Laboratory Specimen Submission Form, SS-SLI-1-08.
Sample Test Kit: TB Culture Kit for "UN-2814- Infectious Substance Affecting Humans, Category A".
Shipping Requirements: Triple Package and ship as "UN-2814- Infectious Substance Affecting Humans, Category A" for transport by Courier or by the USPS.

Test Name: **Mycobacteriology (TB) Smear**
Lab and Phone #: **Mycobacteriology Laboratory** 617-983-6381
Use of Test: Presumptive diagnosis of mycobacterial disease; rapid identification of most infectious cases, e.g. those that are smear positive; to follow progress of tuberculosis patient on chemotherapy; to evaluate if patient may be discharged from hospital or return to gainful employment. The laboratory strongly recommends this test be done in conjunction with mycobacterial culture.
Test Includes: Acid Fast Smear only.
Normal Range: No AFB found.
Limitations: Much less sensitive than culture for detecting mycobacteria.
Availability: Monday through Friday.
Turnaround Time: 24 hours.
Sample and Volume: Prepared slide or 1 to 3 mL of specimen.
Forms Required: State Laboratory Specimen Submission Form, SS-SLI-1-08.
Sample Test Kit: TB Culture Kit.
Shipping Requirements: Use a triple packaging system for transporting by Courier or USPS as an "UN3373- Biological Substances, Category B".
Comments: **Additional tests recommended:** Mycobacteria Culture.

Test Name: **Mycobacteriology (TB) Smear and Culture**
Lab and Phone: **Mycobacteriology Laboratory** 617-983-6381
Use of Test: Determine presence or absence of *mycobacteria*; if present identify the species using Genprobe Accuprobe or biochemical testing.
Test Includes: Acid Fast Smear and Culture.
Availability: Monday through Friday.
Turnaround Time: Smear 24 hours, culture 1 to 8 weeks.
Patient Preparation: Collect specimens prior to chemotherapy. Sterile preparation of site if applicable.

Sample and Volume:**•Body Fluids (containing blood)**

Volume: 10 mL
Container: Blood collection tube.
TB Culture Kit

•Body Fluids (not containing blood)

Volume: 10 to 15 mL
Container: TB Culture Kit

•Blood

Volume: 10 mL
Container: Blood collection tube.
TB Culture Kit

•Bone Marrow

Volume: 1 to 10 mL
Container: Blood collection tube.
TB Culture Kit

•Cerebrospinal Fluid

Volume: \geq 2 mL
Limitations: Cerebrospinal fluid submitted in CSF collection tubes with attached caps usually leak in transport. Transfer specimen to container provided in TB Culture Kit.

•Gastric Aspirate/ Washing

Volume: 5 to 10 mL
Container: TB Culture Kit
Limitations: Specimens that have not been neutralized, (buffered) are unacceptable.
Special Instructions: Collect fasting specimen soon after patient awakens in order to obtain sputum swallowed during sleep. Collect 3 specimens on different days. Neutralize immediately, submit on day of collection and indicate on requisition form that the specimen has been neutralized.

•Skin Lesion Material

Volume: 1 cubic centimeter
Container: TB Culture Kit.
Limitations: Do not wrap in gauze. Do not freeze. 1 to 2 mL of sterile saline may be used to keep tissue moist. Swabs are not recommended. Negative results obtained from specimens submitted on swabs are not reliable.

•Sputum

Volume: 5 to 10 mL
Container: TB Culture Kit.
Limitations: 24-hour pooled specimens and saliva are unacceptable specimens.
Special Instructions: Collect a series of 3 first morning specimens collected on different days. Submit on day of collection.

•Tissue Biopsy

Volume: 1 cubic centimeter
Container: TB Culture Kit.
Limitation: Do not wrap in gauze. Do not freeze. 1 to 2 mL of sterile saline may be used to keep tissue moist. Swabs are not recommended. Negative results obtained from specimens submitted on swabs are not reliable.

•Urine

Volume: 20 mL

Container: TB Culture Kit.

Limitations: 24-hour pooled specimens are unacceptable.

Special Instructions: Collect a series of 3 to 5 specimens collected on different days. Collect first morning clear voided midstream specimen.

Submit sample to the laboratory on the day of collection.

State Laboratory Specimen Submission Form, SS-SLI-1-08.

Transport samples to the laboratory as soon as possible. Refrigerate if a delay in submitting is anticipated. Use a triple packaging system for transporting by Courier or USPS. Mark the outer packing "UN3373- Biological Substances, Category B"

Drug susceptibility testing is performed on all *M. tuberculosis* complex isolates.

Form Required:

Shipping Requirements:

Comments:

Test Name:

Lab and Phone#:

Use of Test:

Test Includes:

Normal Range:

Limitations:

Availability:

Turnaround Time:

Sample:

Forms Required:

Sample Test Kit:

Shipping Requirements:

Mycobacteriology (TB) Susceptibility

Mycobacteriology Laboratory 617-983-6381

To determine the in vitro susceptibility of mycobacteria to the above listed antimicrobial agents.

Proportion method of testing mycobacterial isolates against Streptomycin, Isoniazid, Ethambutol, Rifampin, Ethionamide, Capreomycin, Cycloserine, Ciprofloxacin and Kanamycin.

Pattern of susceptibility varies based on isolate.

Pure isolate, only done on pathogens.

Monday through Friday.

Primary specimens usually 7-8 weeks. Referred cultures usually 3 to 4 weeks.

Primary specimen or mycobacterial isolate.

State Laboratory Specimen Submission Form, SS-SLI-1-08.

TB Culture Kit.

For primary specimens- Use a triple packaging system for transporting by Courier and by USPS. Mark the outer packing "UN3373- Biological Substances, Category B".

For isolates and referred cultures- Use a triple packaging system for transporting by Courier and by USPS. Mark the outer packing "UN-2814- Infectious Substance Affecting Humans, Category A".

Test Name:

Lab and Phone#:

Use of test:

Test Includes:

Normal Range:

Limitations:

Availability:

Turnaround Time:

Sample:

Forms Required:

Sample Test Kit:

Shipping Requirements:

Mycobacteriology (TB) Susceptility, Rapid

Mycobacteriology Laboratory 617-983-6381

To determine the in vitro susceptibility of *M. tuberculosis* complex organisms to the first line drugs listed below.

Rapid radiometric susceptibility tests for TB using Bactec for Streptomycin (S), Isoniazid (I) [two concentrations], Ethambutol (E), Rifampin (R) and Pyrazinamide (PZA). The results are available 7 to 12 days after inoculation.

M. tuberculosis complex organisms susceptible to the above antimicrobial agents.

Pure isolate, only done on *M. tuberculosis* complex organisms.

Test is set up on Friday. Send positive cultures as early in the week as possible.

One to three weeks.

M. tuberculosis complex isolate.

State Laboratory Specimen Submission Form, SS-SLI-1-08.

TB Culture Kit.

Use a triple packaging system for transporting by Courier or USPS. Mark the outer packing " UN2814-Infectius Substance Affecting Humans, Category A".

Test Name: *Mycoplasma pneumoniae* Antibody IgM

Lab and Phone #: Virus Serology Laboratory 617-983-6396

Use of Test: Diagnosis of current *Mycoplasma pneumoniae* infection.

Test includes: *M. pneumoniae* IgM EIA Assay

Significant Result: Presence of IgM indicates recent or current infection.

Limitations: If testing a particular specimen occurs early during the primary infection, no detectable IgM may be evident and a second sample may be requested.

Availability: As requested

Turnaround Time: 3 to 5 days

Sample and Volume: 2 mL of serum, no additives

Form Required: State Laboratory Specimen Submission Form, SS-SLI-1-08.

Sample Test Kit: Provided by user.

Sample Collection: Acute sample collected within 7 days after onset; collection of convalescent serum (at least 14 days after onset) may be necessary.

Shipping Requirements: Triple package for courier or USPS and ship as "UN3373- Biological Substances, Category B".

Test Name: *Neisseria gonorrhoeae*
See Gonorrhea Culture.

Test Name: *Neisseria gonorrhoeae*, Amplified Molecular Assay (AMA)

Lab and Phone #: STD Bacteriology Laboratory 617-983-6600

Use of Test: TESTING IS AVAILABLE ONLY ON SPECIMENS FROM ASSIGNED CLINICS: Assigned clinics are specific sites selected to monitor disease prevalence throughout the Commonwealth.

Test Includes: Selective screening of asymptomatic individuals at risk of Sexually Transmitted Diseases (STD).

Normal Range: Amplified Molecular Assay.

Limitations: Negative for Gonorrhea.

Availability: The only forensically acceptable Gonorrhea test for medico-legal cases is a culture. AMA is not recommended for post-treatment assessment ("Test of Cure") and is not valid for sexual abuse/assault. In addition, specimens that may be tested are limited to those urogenital sites listed below; other sites are not approved by the FDA and will not be tested. The allowable time lapses between collection of the specimen, transport and receipt is critical and of limited length.

Turnaround Time: Monday through Friday.

Sample: 1 to 7 days.

Forms Required: Endocervical swab for females, urethral swabs for males, urines for males and females.

Sample Container: Chlamydia/GC Specimen Submission Form supplied to assigned clinics by prior arrangement.

Sample Test Kits: Swabs and sterile urine containers supplied by clinics.

Sample Collection: Use Chlamydia Kits supplied by the SLI to assigned clinics for the transport of swab and urine specimens.

Comments: In addition to the instructions provided in the kit, on-site training is provided to assigned clinics.

Shipping Requirements: Direct courier delivery to the STD Laboratory. Use triple packaging system for transporting by courier. Mark package as "UN3373- Biological Substances, Category B". Urines samples must be refrigerated (4°C) and transported on ice. The sample must be received at the laboratory within 4 days of collection. No more than 24 hours should be spent in transit. If you can not meet the above requirements, specimens may be stored frozen (-20° C or below) and shipped to the lab on dry ice to maintain the frozen state.

Additional tests recommended: Specimens from sites other than those listed as acceptable for this test may be for tested for Gonorrhoeae by culture method.

Test Name:	<u>Neisseria gonorrhoeae Antimicrobial Susceptibility</u>	
See Gonorrhea Culture.		
Test Name:	<u>Neisseria meningitidis Culture</u>	
Use of Test:	To serogroup isolate for use in treatment selection and/or epidemiological studies.	
Lab and Phone #:	Reference Bacteriology Laboratory	617-983-6607
Test Includes:	Serogrouping of <i>Neisseria meningitidis</i> .	
Limitations:	Testing performed only on organisms isolated from normally sterile sites unless prior consultation is arranged.	
Availability:	Monday through Friday.	
Turnaround Time:	1 to 2 days.	
Sample:	Pure young culture on agar slant.	
Forms Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08.	
Shipping Requirements:	Use a triple packaging system for transporting by Courier or USPS. Mark the outer packing "UN3373- Biological Substances, Category B". Mark "DO NOT REFRIGERATE" on outside of package.	
Comments:	Additional tests recommended: Prior correct identification of <i>Neisseria meningitidis</i> is required.	
Test Name:	<u>Nocardia Culture</u>	
Lab and Phone#:	Mycobacteriology Laboratory	617-983-6381
Use of test:	Presumptive identification of Nocardia and Rhodococcus to the genus level.	
Test Includes:	Presumptive Identification of Nocardia and Rhodococcus to the genus level.	
Normal Range:	Negative.	
Limitations:	Pure isolate.	
Availability:	Monday to Friday.	
Turnaround Time:	One to three weeks.	
Sample:	Positive isolate.	
Forms Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08.	
Sample Test Kit:	TB Culture Kit.	
Turnaround Time:	One to three weeks.	
Shipping Requirements:	Triple package specimens for courier or USPS and mark outer package as "UN3373-Biological Substances, Category B"	
Test Name:	<u>Nocardiosis Serology</u>	
	See CDC Serology–Bacterial/Fungal/Protozoal.	
	Reference Bacteriology Laboratory	617-983-6607
Test Name:	<u>Norovirus Polymerase Chain Reaction Assay</u>	
Lab and Phone #:	Enteric Bacteriology Laboratory	617-983-6609
Use of Test:	Detection of norovirus RNA in stool or vomitus specimens	
Significant Result:	Presence of norovirus RNA	
Limitations:	The sensitivity of this test may be compromised by delays in specimen collection and/or transport, inadequate specimen volumes, and improper transport conditions.	
Availability:	All testing is performed in support of epidemiologic investigations, and must be pre-approved by the MDPH Epidemiology Program 617-983-6800.	
Turnaround Time:	4 to 7 business days.	

Sample: Vomitus or stool. 10-15 mL in volume.
Forms Required: State Laboratory Specimen Submission Form, SS-SLI-1-08.
Sample Test Kit: Vomitus or stool- any sterile container.
Stool only- Enteric Kit.
Enteric Kits can be ordered by calling 617-983-6640.
Specimens should be collected as soon as possible after symptom onset, preferably within the first 24 hours. Vomitus 10-15 mL must be submitted fresh, on ice, in a sterile container. Stool 10-15 mL can be submitted fresh, on ice, in a sterile container, or in the Enteric Test Kit. Specimens that are being tested for only norovirus should be refrigerated prior to transport and transported on ice. If requesting testing for both norovirus and bacterial enteric pathogens on a single specimen, specimens should be submitted at room temperature in an Enteric Test Kit. When using an Enteric Kit, put enough stool in the transport media vial to raise the liquid solution to the, "add specimen to this line" level printed on the vial label. Specimens should be transported via courier, not U.S.Mail. Specimens submitted in Enteric Test Kits should be received by the laboratory within 48 hours of collection. Specimens submitted in sterile containers on ice should be received by the laboratory within 24 hours of collection.
Shipping Requirements: Use triple packaging system for transporting by courier only. Mark the outer packing "UN3373- Biological Substances, Category B".

Test Name: *Orthopoxvirus, PCR*
Lab and Phone # Virus Isolation Laboratory 617-983-6853/ 6382
Special Instructions: Notify MDPH Epidemiologists at 617-983-6800 (24 hour/7day) to report all pustular rash illness symptoms suspicious for orthopoxvirus. Prior to shipping specimens, call the Virus Isolation Laboratory to verify instructions for packaging and shipping prior to transport to the SLI. Instruct the courier to call the Laboratory upon arrival of the specimen.
Use of Test: Presumptive identification of orthopoxvirus DNA.
Test Includes: Rapid screening by Polymerase Chain Reaction (PCR) for presumptive differential identification of several orthopoxviruses including variola, vaccinia, cowpox and monkeypox. Rapid screening by PCR for presumptive identification will be performed on a case-by-case basis in consultation with MDPH Epidemiologists and Laboratorians. Confirmatory testing will be performed by CDC.
Normal Range: Nucleic Acid not detected for *Orthopoxvirus*.
Availability: Available after prior consultation with the Virus Isolation Laboratory.
Turn Around Time: 6 hrs
Sample: Primary specimen for identification: vesicular material, scab specimens, lesion biopsy.
Forms Required: State Laboratory Specimen Submission Form, SS-SLI-1-08.
Sample Container: Vesicular/Pustular rash illness specimen collection kit. Call 617-983-6800
Sample Collection: Vesicular material, scab specimens, lesion biopsy. See instructions in test kit.
Shipping Requirements: Arrangements should be made with MDPH Epidemiologists at 617-983-6800 for transport at 4°C to the Laboratory. Use triple packaging system for transporting by courier only. Mark the outer packing "UN3373- Biological Substances, Category B".

Test Name: *Paracoccidioidomycosis Serology*
See CDC Serology–Bacterial/Fungal/Protozoal.
Reference Bacteriology Laboratory 617-983-6607

Test Name: *Paragonimiasis Serology*
See CDC Serology–Bacterial/Fungal/Protozoal.
Reference Bacteriology Laboratory 617-983-6607

Test Name: **Parainfluenza Virus Culture**
See Influenza/ Parainfluenza Culture and Subtyping.

Test Name: **Parasitic Serology (except for Toxoplasmosis)**
See CDC Serology–Bacterial/Fungal/Protozoal.
Reference Bacteriology Laboratory 617-983-6607

Test Name: **Pertussis Culture**
See *Bordetella pertussis* and other *Bordetella spp.* Culture.

Test Name: **Pesticides and Industrial Chemicals in Food**
Lab and Phone #: **Environmental Chemistry Laboratory** **617-983-6657**
Comments: Call the laboratory for specific sampling instructions. Testing will be evaluated on a case by case basis.

Test Name: **PFGE**
See Bacterial Typing, Pulsed Field Gel Electrophoresis.

Test Name: **Plague Serology**
See CDC Serology–Bacterial/Fungal/Protozoal; *Yersinia pestis* Culture and PCR.

Test Name: **Plesiomonas shigelloides**
See Enteric Pathogens, Referred Culture.

Test Name: **Pneumonia**
See Bacterial Culture for Identification.

Test Name: **Poliovirus Culture**
See Enterovirus Culture.

Test Name: **Polychlorinated biphenyls (PCB), Serum** (for research purposes only)
Lab and Phone #: **Environmental Chemistry Laboratory** **617-983-6657**
Use of Test: PCB exposure assessment.
Test Includes: Aroclor and specific congener analysis.
Turnaround Time: 30 working days.
Sample Volume: 5 mL of serum.
Container: Red topped vacutainer, no anticoagulant, no serum separator tubes.
Collection: Call laboratory for specific sample collection, storage and transport instructions.

Test Name: **Pulsed Field Gel Electrophoresis (PFGE)**
See Bacterial Typing, PFGE.

Test Name:	<u>Q Fever Antibody</u>
	See CDC Serology- Viral/ Other. Virus Serology Laboratory 617-983-6396
Test Name:	<u>Rabies, Antigen Detection, Human</u>
Lab and Phone #:	Sample sent to CDC.
Special Instructions:	Virus Isolation Laboratory 617-983-6853/ 6382 Contact MDPH, BCDC, Division of Epidemiology at 617-983-6800 before submitting sample.
Sample:	May require variety of specimens including brain, nuchal biopsy (back of neck hair follicle/nerve), CSF, serum, saliva sent to the Laboratory will be shipped to CDC. State Laboratory Specimen Submission Form, SS-SLI-1-08.
Forms Required:	Contact Division of Epidemiology at 617-983-6800 for instructions.
Sample Collection:	Provided by user.
Sample Test Kit:	Transport to the laboratory within 24 hours at refrigerated temperatures. Use triple packaging system for transporting by Courier Service.
Shipping Requirements:	Mark the outer packing "UN3373- Biological Substances, Category B". Exposed patient should consult with physician and epidemiologist. It may be necessary to start Rabies post-exposure treatment immediately.
Patient Preparation:	Persons suspecting an exposure should notify their doctor and contact the Division of Epidemiology at 617-983-6800.
Comments:	
Test Name:	<u>Rabies, Antigen Detection, Non-Human</u>
Lab and Phone #:	Rabies Laboratory 617-983-6385
Use of Test:	Identification of Rabies in animals.
Special Instructions:	Persons suspecting an exposure should notify their doctor and contact the MDPH, BCDC, Division of Epidemiology at 617-983-6800.
Limitations:	The different regions of the brain must be discernible to perform a satisfactory test. It is important that the sample be intact and not mutilated.
Availability:	Monday through Friday. Weekends and holidays when approved by epidemiologist.
Turnaround Time:	Same day on specimens received before 12:00 pm Monday through Friday. Next working day for specimens received after this time. Results of weekend testing will be reported by phone.
Sample:	Head or brain of animal only. With the exception of bats, the whole body will not be accepted. Do not send live animals.
Sample Container:	Provided by user.
Forms Required:	State Laboratory Specimen Request for Rabies Testing Form, SS-RA-1-06. Call the laboratory for a copy of the form.
Sample Test Kit:	Provided by user.
Sample Collection:	Animal heads (or brains) must be fresh and not crushed or mutilated.
Shipping Requirements:	Transport to the laboratory within 24 hours at refrigerated temperatures. Use triple packaging system for transporting by courier service. Mark the outer packing "UN3373- Biological Substances, Category B".
Test Name:	<u>Rash Panel</u>
Lab and Phone #:	Virus Serology Laboratory 617-983-6396
	Includes testing for Measles and Rubella See "Measles Antibody IgM Antibody" and "Rubella Antibody IgM EIA".

Test Name:	<u>Respiratory Panel, Culture Virus</u>	
Lab and Phone #:	Virus Isolation Laboratory	617-983-6853/ 6382
See Adenovirus Culture, Influenza/Parainfluenza Culture, and Respiratory Syncytial Virus Culture.		
Test Name:	<u>Respiratory Syncytial Virus (RSV) Culture</u>	
Lab and Phone #:	Virus Isolation Laboratory	617-983-6853/ 6382
Availability:	As requested	
Turnaround Time:	2 to 10 days	
Sample:	Nasopharyngeal swab	
Forms Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08.	
Sample Collection:	Call the laboratory for collection instructions	
Sample Test Kit:	Respiratory Virus Testing Kit. Call 617-983-6800.	
Shipping Requirements:	Use triple packaging system for transporting by courier only. Mark the outer packing "UN3373- Biological Substances, Category B".	
Comments:	Note: Culture for additional viruses may be performed at the discretion of the laboratory.	
Test Name:	<u>Rickettsia Antibody</u>	
	See CDC Serology- Viral/ Other.	
	Virus Serology Laboratory	617-983-6396
Test Name:	<u>Rapid Plasma Reagin Card Test (RPR), Non-treponemal Syphilis Serology Test</u>	
Lab and Phone #:	STD Bacteriology Laboratory	617-983-6600
Use of Test:	Screening test for syphilis: The RPR test measures IgM and IgG antibodies to lipoidal material released from damaged host cells as well as to lipoproteinlike material, and possibly cardiolipin released from the treponemes. These antibodies are produced not only as a consequence to treponemal disease, but also in response to non-treponemal diseases in which tissue damage occurs. This test is also used to determine quantitative levels of non-treponemal antibodies to syphilis and to follow patients with syphilis who have been treated.	
Test Includes:	QUALITATIVE SCREENING TESTING IS AVAILABLE ONLY ON SPECIMENS FROM ASSIGNED CLINICS: Assigned clinics are specific sites selected to monitor disease prevalence throughout the Commonwealth. Qualitative and Quantitative testing on specimens submitted:	
	<ul style="list-style-type: none"> • For confirmation of reactive results obtained with non-treponemal screening tests • For antibody testing follow-ups • For assessment of treatment efficacy • For assessment of patients with symptomatology consistent with infectious syphilis (primary, secondary, or early latent stages) 	
Normal Range:	Non- Reactive.	
Limitations:	Prozone reactions occasionally occur in the screening tests, which may result in false negative results. They occur when there is complete or partial inhibition of reactivity with undiluted serum. The RPR test cannot be used with spinal fluids. The RPR may be reactive in persons from areas where yaws, pinta or non-venereal syphilis is endemic. Biologic False Positive reactions occur occasionally in specimens from persons who abuse drugs, have diseases such as lupus erythematosus, or have recently been vaccinated. Persons treated during latent or late stages may remain serofast. The test is not specific for syphilis.	
Availability:	Monday through Friday.	

Turnaround Time:	1 to 5 Days.
Sample and Volume:	Serum (\geq 3 mL) or whole blood (5 to 10 mL) collected in a red top or Serum Separator Tube (SST). Serum is preferable to whole blood. Use 13x100 mm or 16x100 mm tubes for collection. Allow blood to clot at least 30 minutes. Separate serum if centrifuge is available.
Forms Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08.
Sample Test Kit:	Syphilis Serology Single Kit (holds one tube) or Syphilis Serology Multiple Kit (holds up to 9 tubes). These kits may be ordered by calling 617-983-6640.
Sample Collection:	Venipuncture- collect 5 to 10 mL in red top tube or SST. Use 13x100 mm or 16x100 mm tubes for collection. Allow blood to clot at least 30 minutes. Separate serum if centrifuge is available.
Shipping Requirements:	Serum may be shipped at room temperature, cold or frozen. Whole blood must be maintained at a temperature between 2°C and 27°C. Triple package the specimen for transport by Courier or USPS. Mark the outer packing " UN3373- Biological Substances, Category B".

Test Name:	Rubella Antibody, Total
Lab and Phone #:	Virus Serology Laboratory 617-983-6396
Use of Test:	Confirmation of rubella infection.
Test Includes:	Total rubella antibody testing by latex agglutination.
Significant Result:	Seroconversion or four-fold increase in titer.
Limitations:	Cannot distinguish between antibody produced in response to vaccination versus wild strain rubella infection.
Availability:	As required.
Turnaround Time:	2 days upon receipt of convalescent serum.
Sample and Volume:	2 mL of serum, no additives.
Forms Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08.
Sample Test Kit:	Provided by user.
Sample Collection:	Collect acute serum during first week of illness and convalescent serum 10 to 14 days later.
Shipping Requirements:	Triple package the specimen for transport by Courier or USPS. Mark the outer packing " UN3373- Biological Substances, Category B".
Comments:	MDPH, BCDC, Division of Epidemiology at 617-983-6800 should be contacted for all suspect rubella cases.

Test Name:	Rubella Antibody, IgM EIA
Lab and Phone #:	Virus Serology Laboratory 617-983-6396
Use of Test:	Early diagnosis of rubella infection.
Test includes:	Rubella IgM EIA Assay
Significant Result:	Positive IgM indicates current or recent rubella infection. Negative IgM indicates probable non-rubella rash or sample collected too early convalescent serum should be submitted to rule out rubella infection.
Limitations:	IgM may be negative if the specimen is collected prior to the appearance of or before the third day after rash onset. Cannot distinguish between antibodies produced in response to vaccine versus wild strain rubella.
Availability:	As requested
Turnaround Time:	1 to 3 days.
Sample and Volume:	2 mL of serum, no additives
Form Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08.
Sample Test Kit:	Provided by user.
Sample Collection:	Acute serum collected 3 to 7 days after appearance of rash.
Shipping Requirements:	Use triple packaging system for transporting by courier or USPS. Mark the outer packing " UN3373- Biological Substances, Category B".

Comments: MDPH, BCDC, Division of Epidemiology at 617-983-6800 should be contacted for all suspect rubella cases.
Additional tests recommended: Measles IgM testing may also be performed at the Laboratory's discretion for differential diagnosis.

Test Name: **Rubella Virus Isolation**
(Performed at Georgia State University)

Lab and Phone #: **Virus Isolation Laboratory** **617-983-6853/ 6382**

Test Includes: Isolation of Rubella virus in cell culture.

Limitations: Rubella virus is rarely isolated from clinical specimens. Serology is recommended.

Availability: As requested.

Turnaround Time: Approximately one month.

Sample: Nasal wash (nasopharyngeal aspirate), nose/throat swabs, and urine.

Forms Required: State Laboratory Specimen Submission Form, SS-SLI-1-08.

Sample Test Kit: Provided by user.

Sample Collection: Call the Laboratory for instructions.

Shipping Requirements: Transport to the laboratory within 24 hours at refrigerator temperature. Triple package the specimen for transport by Courier or USPS. Mark the outer packing "UN3373- Biological Substances, Category B".

Comments: **Additional tests recommended:** IgM serology is the recommended test for evidence of Rubella virus infection.
Note: Culture for additional viruses may be performed at the discretion of the Laboratory. MDPH, BCDC, Division of Epidemiology at 617-983-6800 should be contacted for all suspect rubella cases.

Test Name: **Rubeola**
See Measles Listings.

Test Name: **Salmonella Culture, Food**
See Salmonella Isolation, Food.

Test Name: **Salmonella Isolation, Food**
Lab and Phone #: **Food Bacteriology Laboratory** **617-983-6610**

Use of Test: To support epidemiologic evidence implicating a food as a possible source of illness.

Special Instructions: Food samples must be submitted through local or state public health agencies and implicated in an outbreak (one or more ill consumers). **The laboratory should be notified by phone prior to submission of samples.** Include the source of the sample and all other pertinent information on the specimen submission form. Isolation and identification of *Salmonella* Species and organoleptic examination. Foods will be examined for *Salmonella* only if the clinical and epidemiologic information is compatible with *Salmonella* foodborne disease.

Test Includes: Monday through Friday.

Limitations: 4 to 7 days.

Availability: At least 100 grams are preferable but lesser amounts are acceptable.

Turnaround Time: Food Bacteriology Specimen Submission Form, SS-FD-11-02. Forms are obtainable through the Food Microbiology Lab at 617-983-6610; the MDPH Division of Food and Drugs, Food Protection Program at 617-983-6712, and the local Board of Health.

Specimen and Volume: Original sample container as submitted by inspector or other sterile leak proof container.

Forms Required:

Sample Container:

Sample Collection:	Collect food aseptically and place in sterile whirlpack bags or other sterile, leak proof container. Keep all samples refrigerated except for those received frozen which should remain in the frozen state.
Shipping Requirements:	Transport or ship samples on frozen ice packs or ice in appropriate packagings.
Comments:	Additional tests recommended: Enteric Pathogens, Routine Culture.
 Test Name:	
	<u>Salmonellosis</u> See Enteric Pathogens, Referred Culture; Enteric Pathogens, Routine Culture.
 Test Name:	
	<u>Schistosomiasis Serology</u> See CDC Serology–Bacterial/Fungal/Protozoal. Reference Bacteriology Laboratory 617-983-6607
 Test Name:	
	<u>Serotyping Enteric Pathogens (<i>Salmonella</i>, <i>Shigella</i>, <i>Vibrio cholerae</i>, <i>E. coli</i> O157:H7)</u> See Enteric Pathogens, Referred Culture.
 Test Name:	
Lab and Phone #:	<u>Serotyping <i>Streptococcus pneumoniae</i>, <i>Streptococcus pyogenes</i> (M and T Typing)</u>
Use of Test:	Reference Bacteriology Laboratory 617-983-6607
 Test Includes:	To determine serotype of <i>S. pneumoniae</i> in patients who received the pneumococcal vaccine or have multiple isolates (different infections); for epidemiological purposes in possible outbreaks; for treatment purposes and surveillance.
Limitations:	Confirmation of <i>S. pneumoniae</i> . Samples are shipped to the CDC for serotyping Reason for request must meet criteria above. Prior consultation with CDC may be required. <i>S. pyogenes</i> for M and T typing must have been isolated from normally sterile body fluids unless specific arrangements have been made with CDC Streptococcus Laboratory. Consult with Reference Bacteriology at 617-983-6607 for CDC referral.
 Availability:	Monday through Friday.
Turnaround Time:	3 weeks to several months.
Sample:	Pure culture on an agar slant.
Forms Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08.
Shipping Requirements:	Use triple packaging system. Mark the outer packing “ UN3373- Biological Substances, Category B”.

Test Name:	<u>Shiga Toxin (Verotoxin) Assay</u>
Lab and Phone #:	Enteric Bacteriology Laboratory 617-983-6600
Use of Test:	Confirm presence of Shiga toxin. Isolate Shiga-toxin producing organism(s) for subsequent identification.
Test Includes:	Test for Shiga toxin(s) by commercial in-vitro microwell Enzyme Immunoassay. Isolation of Shiga-toxin producing organism from mixed positive specimens for subsequent identification. Confirmation of suspected Shiga toxin-producing <i>E. coli</i> (STEC) or other suspected Shiga toxin producing organism and subsequent serotyping if applicable.
Normal Range:	Negative.
Limitations:	Mixed cultures and stool specimens must be submitted in a timely manner. Shiga toxin-producing organisms are usually present in far fewer numbers than normal background organisms and are easily overgrown by them. Isolation can be problematic when mixed cultures or stools are not submitted as soon as possible. Refrigeration helps retard overgrowth by background organisms.
Availability:	Once per week.
Turnaround Time:	2 to 7 days for confirmation of mixed culture and/or stool specimen. Successful isolation of the Shiga toxin-producing organism can take a few days longer. Final confirmation and serotyping are performed by the CDC. Results may be over one month from time specimen is submitted to CDC. Pure subculture is preferable. Broth culture on ice and/or fresh stool on ice are also acceptable.
Sample:	State Laboratory Specimen Submission Form, SS-SLI-1-08.
Forms Required:	Screw-capped tube for cultures. A sterile stool collection container or Enteric Specimen Kit with transport medium for fresh stool.
Sample Container:	Collect stool specimen either in a sterile collection jar (ship on ice), or in a Enteric Specimen Kit. Kits may be ordered by calling 617-983-6640.
Sample Collection:	Ship pure cultures at room temperature. Use triple packaging and mark as "UN2814-Infectious Substances Affecting Humans, Category A."
Shipping Requirements:	Ship mixed cultures or fresh stools with packaged refrigerant. Ship stools in Enteric Specimen Kits at room temperature. Mark the outer packing " UN3373- Biological Substances, Category B".

Test Name: **Shiga Toxin-Producing *E. coli* (STEC)**
 See Shiga Toxin (Verotoxin) Assay.

Test Name: ***Shigella* Culture, Food**
 See *Shigella* Isolation, Food.

Test Name: ***Shigella* Isolation, Food**
Lab and Phone #: **Food Bacteriology Laboratory** **617-983-6610**
Use of Test: To support epidemiologic evidence implicating a food as a possible source of illness.
Special Instructions: Food samples must be submitted through local or state public health agencies and implicated in an outbreak (one or more ill consumers). The laboratory should be notified by phone prior to submission of samples. Include the source of the sample and any other pertinent information on the submission form.
Test Includes: Isolation and identification of *Shigella* species and an organoleptic examination.

Limitations:	Foods will be examined for <i>Shigella</i> only if the clinical and epidemiologic information is compatible with <i>Shigella</i> foodborne disease.
Availability:	Monday through Friday.
Turnaround Time:	3 to 7 days.
Sample and Volume:	At least 100 grams would be preferable, but lesser amounts are acceptable.
Forms Required:	Food Bacteriology Specimen Submission Form, SS-FD-1-06 obtainable through the Food Microbiology Lab at 617-983-6610, MDPH Division of Food and Drugs at 617-983-6712, and the local Board of Health.
Sample Container:	Original sample container as submitted by inspector or other sterile leak proof container.
Sample Collection:	Collect food aseptically and place in sterile whirlpack bags or other sterile, leak proof container. Keep all samples refrigerated except for those received frozen which should be maintained in the frozen state.
Shipping Requirements:	Transport or ship samples on ice in appropriate packagings.
Comments:	Additional tests recommended: Enteric Pathogens, Routine Culture.

Test Name: **Shigellosis**
 See Enteric Pathogens, Referred Culture; Enteric Pathogens, Routine Culture.

Test Name: **Smallpox Virus**
Lab and Phone #: **Virus Isolation Laboratory** **617-983-6853/ 6382**
Special Instructions: **Immediately upon suspicion of a smallpox case, contact MDPH, BCDC, Division of Epidemiology at 617-983-6800 before collecting and submitting specimens. Call the Virus Isolation Laboratory prior to shipping the specimen. Instructions for packaging and shipping patient specimen will be reviewed over the phone prior to transfer to the SLI. Instruct the courier to call the Laboratory upon arrival of the specimen.**
Availability: As required, samples will be tested at the CDC
Forms Required: State Laboratory Specimen Submission Form, SS-SLI-1-08.
Sample Test Kit: CDC Form 50.34 Rev. 11-90 will be filled out at the laboratory.
Sample Collection: Smallpox specimen collection kit.
Shipping Requirements: Vesicular material, scab specimens, biopsy lesions. See instructions in test kit. Arrangements should be made with MDPH Epidemiologists at 617-983-6800 for transport of patient specimens to the State Laboratory Institute. Triple package all specimens.

Test Name: **Smallpox Virus**
 See Orthopoxvirus PCR

Test Name: **Sporotrichosis Serology**
 See CDC Serology–Bacterial/Fungal/Protozoal.
 Reference Bacteriology Laboratory 617-983-6607

Test Name: **St. Louis Encephalitis (SLE) Virus Antibody IgM and IgG, Human**
Lab and Phone #: **Virus Serology Laboratory** **617-983-6396**
 See Arbovirus Antibody IgM and IgG, Human

Test Name: **Staphylococcus aureus Culture, Food**
 See *Staphylococcus aureus* Plate Count, Food.

Test Name:

Staphylococcus aureus Culture, Stool

See Enteric Pathogens, Routine Culture

Note: Only available through local Health Departments in Massachusetts.

Limited to outbreak situations wherein *S. aureus* has been isolated and quantified in significant numbers from related food samples.

Test Name:

Lab and Phone #:

Staphylococcus aureus Plate Count, Food

Food Bacteriology Laboratory 617-983-6610

To support epidemiologic evidence implicating food as a source of illness.

Food samples must be submitted through local or state public health agencies and implicated in an outbreak (one or more ill consumers). Include the source of the specimen and any other pertinent information on the specimen submission form.

Isolation and enumeration of *S. aureus* and an organoleptic examination.

Foods will be examined for *S. aureus* only if the clinical and epidemiologic information is compatible with *S. aureus* foodborne disease.

An interval of greater than 24 hours between consumption of suspect food and onset of symptoms is not indicative of staphylococcal intoxication.

Monday through Friday.

2 to 4 days.

At least 100 grams would be preferable but lesser amounts are acceptable.

Food Bacteriology Specimen Submission Form, SS-FD-1-06 obtainable through the Food Microbiology Laboratory at 617-983-6610, MDPH Division of Food and Drugs, Food Protection Program at 617-983-6712, and local Board of Health.

Original sample container as submitted by inspector or other sterile leak proof container.

Collect food aseptically and place in sterile whirlpack bags or other sterile, leak proof container. Label with source (name of establishment or individual), type of sample, time and date of collection along with other pertinent information.

Transport or ship samples on ice or prefrozen ice packs in appropriate packagings.

Additional tests recommended: *Staphylococcus aureus* Clinical

Culture. Testing for staphylococcus enterotoxin is not available at this time.

Test Name:

Staphylococcus aureus, Streptococcus pyogenes Culture for Toxin Testing

Lab and Phone #:

617-983-6607

Use of Test:

To determine if isolate is responsible for Toxic Shock Syndrome or a "Flesh Eating" Group A *Streptococcus*.

If *S. aureus* stool culture on food handlers is desired, prior consultation is required by calling 617-983-6610.

Confirmation of *S. aureus* and *S. pyogenes* and submitted to the CDC for toxin testing on cultures that are confirmed with prior consultation.

Monday through Friday.

3 weeks to several months.

Pure culture on an agar slant.

State Laboratory Specimen Submission Form, SS-SLI-1-08.

Ship at ambient temperatures. Triple package specimens for transport.

Mark the outer packing "UN3373- Biological Substances, Category B".

Test Name:

STEC (Shiga Toxin-Producing E. coli)

See Shiga Toxin (Verotoxin) Assay.

Test Name:	<u>Stool Culture</u> See Enteric Pathogens, Routine Culture.
Test Name:	<u>Streptococcus pneumoniae, Serotyping</u> See Serotyping <i>Streptococcus pneumoniae</i> , <i>Streptococcus pyogenes</i> (M and T Typing).
Test Name:	<u>Streptococcus pyogenes (Streptococcus sp. Serogroup A), M and T typing</u> See Serotyping <i>Streptococcus pneumoniae</i> , <i>Streptococcus pyogenes</i> (M and T Typing).
Test Name:	<u>Strongyloides Serology</u> See CDC Serology–Bacterial/Fungal/Protozoal. Reference Bacteriology Laboratory 617-983-6607
Test Name:	<u>Syphilis Serology</u> See Rapid Plasma Reagin Card Test(RPR); Syphilis-VDRL-Cerebrospinal Fluid; TP-PA Antibody, (<i>Treponema pallidum</i> Particle Agglutination).
Test Name:	<u>Syphilis VDRL-Cerebrospinal Fluid (CSF)</u>
Lab and Phone #	STD Bacteriology Laboratory 617-983-6600
Use of Test:	To provide serologic evidence of neurologic exposure to syphilis. VDRL-CSF is the only standardized test for neurosyphilis. The VDRL test measures IgM and IgG antibodies to lipoidal material released from damaged host cells as well as to lipoproteinlike material, and possibly cardiolipin released from the treponemes. These antibodies are produced not only as a consequence to treponemal disease, but also in response to non-treponemal diseases in which tissue damage occurs.
Test Includes:	Qualitative screening of non-treponemal (reagin) antibodies in spinal fluid. Quantitative titers are performed on positive screening samples.
Normal Range:	Non-reactive.
Limitations:	A negative result can occur in some neurosyphilis patients. Small amounts of blood or serum may cause a false positive result.
Availability:	Usually run once per week.
Turnaround Time:	1 to 10 days
Sample and Volume:	1 to 3 mL of cerebrospinal fluid from a lumbar puncture into leakproof tubes.
Forms Required:	State Laboratory Specimen Submission Form, SS-SLI-1-08.
Sample Test Kit:	Syphilis Serology Single Kit (holds one tube) or Syphilis Serology Multiple Kit (holds up to 9 tubes). Ordered kits by calling 617-983-6640.
Sample Collection:	Spinal tap, 1 to 3 mL, submitted in leak proof vials or tubes.
Shipping Requirements:	Triple package the specimens for transport by courier or USPS. Mark the outer packing “UN3373- Biological Substances, Category B”.
Test Name:	<u>Taenia solium Serology</u>
	See CDC Serology–Bacterial/Fungal/Protozoal. Reference Bacteriology Laboratory 617-983-6607
Test Name:	<u>TB</u> See Mycobacteriology (TB) listings.

Test Name:	<u>Thermophilic Actinomycetes (Farmer's Lung)</u> See CDC Serology–Bacterial/Fungal/Protozoal. Reference Bacteriology Laboratory 617-983-6607
Test Name: Lab and Phone #:	<u>Tick-borne panel, Humans</u> Virus Serology Laboratory 617-983-6396 Includes testing for Lyme Disease, Babesia, Ehrlichia, and Rickettsial Diseases See Lyme Disease, Western Blot IgM & IgG ; CDC Serology- Viral/ Other.
Test Name:	<u>Toxic Shock, Toxin Testing for <i>Staphylococcus aureus</i>, <i>Streptococcus pyogenes</i></u> See <i>Staphylococcus aureus</i> , <i>Streptococcus pyogenes</i> Culture for Toxin Testing.
Test Name:	<u>Toxocara canis Serology</u> See CDC Serology–Bacterial/Fungal/Protozoal. Reference Bacteriology Laboratory 617-983-6607
Test Name: Lab and Phone #: Use of Test:	<u>Treponema pallidum Particle Agglutination Antibody (TP-PA)</u> STD Bacteriology Laboratory 617-983-6600 Test is most commonly used for the detection of antibodies to <i>Treponema pallidum</i> . Testing is performed on specimens that are reactive with non-treponemal tests (e.g., RPR) and on specimens that are reactive by less commonly used antibody screening tests (e.g., Captia). TP-PA testing of specimens that are non-reactive with non-treponemal tests is limited and must be approved in advance by STD Laboratory staff. The TP-PA is a treponemal test for the serologic detection of antibodies to various species and subspecies of pathogenic <i>Treponema</i> , the causative agents of syphilis, yaws, pinta, bejel and endemic syphilis. Non- Reactive. In a small percentage of healthy individuals false positives may also appear. These are often transient and the cause is unknown. They may occur in association with other underlying illnesses. Positives may occur in individuals from areas where yaws or pinta was or is endemic. Treponemal test results may remain positive for life and cannot be used to evaluate response to treatment or confirm reinfection. Monday through Friday. 1 to 5 Days. Serum (\geq 3 mL) or whole blood (5 to 10 mL) collected in a red top or Serum Separator Tube, (SST). Serum is preferable to whole blood. Use 13x100 mm or 16x 100 mm tubes for collection. Allow blood to clot at least 30 minutes. Separate serum if centrifuge is available. State Laboratory Specimen Submission Form, SS-SLI-1-08. Syphilis Serology Single Kit (holds one tube) or Syphilis Serology Multiple Kit (holds up to 9 tubes). These kits may be ordered by calling 617-983-6640. Venipuncture, collect 5 to 10 mL in a red top tube or SST. Use 13x100 mm or 16x100 mm tubes for collection. Allow blood to clot at least 30 minutes. Separate serum if centrifuge is available. Serum may be shipped at room temperature, cold or frozen. Whole blood must be maintained at a temperature between 2°C and 27°C. Triple package the specimen for transport by Courier or USPS. Mark the outer packing " UN3373- Biological Substances, Category B".
Method of Test:	
Normal Range:	
Limitations:	
Availability:	
Turnaround Time:	
Sample and Volume:	
Forms Required:	
Sample Test Kit:	
Sample Collection:	
Shipping Requirements:	

Test Name: **Trichinosis Serology**
See CDC Serology–Bacterial/Fungal/Protozoal.
Reference Bacteriology Laboratory 617-983-6607

Test Name: **Trypanosomiasis (South American) Serology**
See CDC Serology–Bacterial/Fungal/Protozoal.
Reference Bacteriology Laboratory 617-983-6607

Test Name: **Tuberculosis**
See Mycobacteriology (TB) listings.

Test Name: **Tularemia**
See *Francisella tularensis*, Culture; *Francisella tularensis*, Serology.

Test Name: **Typhoid Fever (*Salmonella typhi*)**
See Enteric Pathogens, Referred Culture; Enteric Pathogens, Routine Culture.

Test Name: **Typhus Antibody**
See CDC Serology- Viral/ Other.
Virus Serology Laboratory 617-983-6396

Test Name: **Vaccinia Virus, DFA and PCR**
Lab and Phone # Virus Isolation Laboratory 617-983-6853/ 6382
Special Instructions: Notify MDPH, BCDC, Division of Epidemiology at 617-983-6800 (24hour /7day) to report suspect vaccinia cases. Prior to shipping specimens, call the Virus Isolation Laboratory to verify instructions for packaging and shipping patient specimens prior to transport to the SLI. Instruct the courier to call the Laboratory upon arrival of the specimen.
Use of Test: Confirmation of Vaccinia virus infection.
Test Includes: Shell vial isolation test followed by virus identification using monoclonal antibody to viral antigen. Direct Fluorescent Antibody (DFA) test for identification of the virus by fluorescent monoclonal antibody on smears prepared from clinical specimen. Rapid screening by Polymerase Chain Reaction (PCR) for presumptive identification of Vaccinia may be performed on a case-by-case basis.
Significant Result: Interpretation provided with result
Availability: Available after prior consultation with the Virus Isolation Laboratory.
Turnaround Time: 6 to 48 hours.
Forms Required: State Laboratory Specimen Submission Form, SS-SLI-1-08.
Sample Test Kit: Vesicular/Pustular rash illness specimen collection kit. Call 617-983-6800.
Sample Collection: Vesicular material, scab specimens, biopsy lesions. See instructions in test kit.
Shipping Requirements: Arrangements should be made with MDPH Epidemiologists at 617-983-6800 for transport of patient clinical specimens at 4°C to the Laboratory.

Test Name: Varicella Zoster Antibody

Lab and Phone #: Virus Serology Laboratory **617-983-6396**

Use of Test: Confirmation of varicella zoster infection or varicella vaccination

Test Includes: Quantitative total antibody testing by latex agglutination

Significant Result: Seroconversion or four-fold difference in titer in paired sera (acute and convalescent) tested preferably at the same time.

Limitations: Cannot distinguish between antibodies produced by recent varicella zoster illness or past infection.

Availability: As requested

Turnaround Time: 1 to 3 days

Sample and Volume: 2 mL of serum, no additives

Form Required: State Laboratory Specimen Submission Form, SS-SL-1-08.

Sample Test Kit: Provided by user.

Sample Collection: Acute serum collected soon after rash onset. Convalescent serum should be collected at least 14 days post onset of symptoms.

Shipping Requirements: Use triple packaging system for courier or USPS. Mark the outer packing " UN3373- Biological Substances, Category B".

Test Name: Varicella Zoster Virus, DFA and PCR

Lab and Phone #: Virus Isolation Laboratory **617-983-6853/ 6382**

Use of Test: Confirmation of Varicella-Zoster virus (VZV) infection. Varicella-Zoster virus can cause two distinct clinical diseases: Chickenpox and Herpes Zoster.

Test Includes: Shell vial isolation test followed by virus identification using monoclonal antibody to viral antigen. Direct Fluorescent Antibody (DFA) test for identification of the virus by fluorescent monoclonal antibody on smears prepared from clinical specimen. Rapid screening by Polymerase Chain Reaction (PCR) for presumptive identification of VZV will be performed on a case-by-case basis.

Significant Result: Interpretation provided with result.

Availability: As required.

Turnaround Time: 6 to 48 hours.

Forms Required: State Laboratory Specimen Submission Form, SS-SLI-1-08.

Sample Test Kit: Vesicular/pustular rash illness specimen collection kit. Call 617-983-6800.

Sample Collection: Vesicular material, scab specimens, and biopsy lesion. See instructions in test kit.

Shipping Requirements: Arrangements should be made with MDPH Epidemiologists at 617-983-6800 for transport of patient clinical specimens at 4°C to the State Laboratory Institute.

Test Name: VDRL-CSF
See Syphilis-VDRL-Cerebrospinal Fluid (CSF).

Test Name: Verotoxin Assay
See Shiga-toxin (Verotoxin) Assay.

Test Name: Vibriosis
See Enteric Pathogens, Referred Culture; Enteric Pathogens, Routine Culture.

Test Name: **Visceral Larva Migrans (Toxocariasis)**
See CDC Serology–Bacterial/Fungal/Protozoal.
Reference Bacteriology Laboratory 617-983-6607

Test Name: **West Nile Virus, Avian**
See Arbovirus PCR, Avian.

Test Name: **West Nile Virus Culture**
See Arbovirus Listings.

Test Name: **West Nile Virus (WNV) Antibody IgM and IgG EIA**
Lab and Phone #: **Virus Serology Laboratory 617-983-6396**
Use of Test: Diagnosis of current infection with West Nile Virus (WNV).
Test Includes: Qualitative IgM capture EIA and IgG indirect EIA testing.
Significant Result: Positive IgM or seroconversion in IgG EIA. Confirmation by plaque reduction neutralization necessary.
Limitations: May cross-react with other arboviruses.
Availability: As requested and routinely from May to October.
Turnaround Time: 2 to 5 days.
Sample and Volume: 3 mL of serum, no additives necessary. At least 1 mL of cerebrospinal fluid collected aseptically.
Forms Required: State Laboratory Specimen Submission Form, SS-SLI-1-08.
Sample Test Kit: Provided by user.
Sample Collection: Acute serum (\geq 3mL) and CSF (\geq 1 mL) should be collected within the first 14 days following onset of symptoms and sent immediately to the State Laboratory. For samples collected before day 8 after onset of symptoms and negative by EIA test, a second serum is recommended to be drawn 10-14 days after onset of symptoms.
Shipping Requirements: Ship sample at refrigerated temperatures. Use a triple packaging system for transporting by Courier or USPS. Mark the outer packing “UN3373- Biological Substances, Category B”.

Test Name: **West Nile Virus (WNV) Antibody IgM and IgG, Horses**
Lab and Phone #: **Virus Serology Laboratory 617-983-6396**
Use of Test: Serodiagnosis of a recent or prior infection or vaccination with WNV. In the absence of symptoms and when the IgM results are negative, the IgG test results can be used as an indicator of immunity.
Test Includes: Separate qualitative EIA testing for WNV antibodies
Significant Result: Presence of IgM indicates recent or current infection or vaccination. IgM absent/IgG present suggests prior exposure.
Limitations: May cross-react with other flaviviruses.
Availability: Routinely from May to October
Turnaround Time: 3 to 7 days
Sample and Volume: 3 mL of serum, no additives; at least 1 mL of cerebrospinal fluid collected aseptically
Form Required: State Laboratory Animal Specimen Submission Form, SS-SLI-2-07
Sample Test Kit: Provided by user.
Sample Collection: Acute serum (\geq 3mL) and CSF (\geq 1 mL) should be collected within the first 14 days following onset of symptoms and sent immediately to the State Laboratory. For samples collected before day 8 after onset of symptoms and negative by EIA test, a second serum is recommended to be drawn 10-14 days after onset of symptoms.
Shipping Requirements: Use triple packaging system for courier or USPS. Mark outer packaging as “Exempt Animal Specimen”.

Test Name:
Lab and Phone #:

West Nile Virus (WNV) Antibody IgM and IgG, Human
Virus Serology Laboratory **617-983-6396**
See Arbovirus Antibody IgM & IgG, Human.

Test Name:

Whooping Cough
See *Bordetella* pertussis and other *Bordetella* spp. Culture;
Bordetella pertussis Serology.

Test Name:
Lab and Phone #:
Special Instructions:

***Yersinia pestis* Culture and PCR**
Biologic Threat Laboratory **617-590-6390 (24hr/7days)**
Notify the Bioterrorism Response Laboratory at the above number to report the identification, presumptive or otherwise, of this agent prior to transfer.
Instructions for packaging the specimen for shipment to the SLI will be reviewed over the phone.

Use of Test:

To rule out infection caused by *Yersinia pestis*.

Test Includes:

Subculture identification or isolation and identification of *Yersinia pestis* from lymph node, bubo, blood, lower respiratory specimens, etc. Rapid screening by Polymerase Chain Reaction (PCR) for presumptive identification of *Yersinia pestis* may be performed on a case-by-case basis.

Normal Range:

Yersinia pestis not found. *Yersinia pestis* DNA not detected by PCR.

Limitations

Patient must have clinical signs consistent with *Yersinia pestis* infection.

Availability:

Available after prior consultation with the Bioterrorism Response Laboratory.

Turnaround Time:

< 1 day to 5 days.

Sample and Volume:

Pure subculture identification or confirmation, primary specimen for isolation and identification, tissue biopsy, (lymph node, bone marrow, spleen, liver) blood culture, bronchial wash and transtracheal aspirates ($\geq 1mL$). Sputum not recommended due to contamination by normal flora. Aspirate or biopsied specimen of liver, spleen, bone marrow or lung, if small amount add 1-2 drops of sterile normal saline to keep tissue moist.

Forms Required:

State Laboratory Specimen Submission Form, SS-SLI-1-08.

Sample Container:

Primary Specimen: Commercial aerobic blood culture bottle for blood;

sterile screw-capped tube with or without swab for fluids and tissue.

Subculture: Pure subculture growing on suitable slanted substrate.

Use a screw- capped tube.

Provided by user.

Sample Test Kit:

Aseptic collection of tissue and body fluid.

Sample Collection:

Transport to the laboratory within 24 hours. For primary specimens other than blood, same day delivery is recommended. Submit the sample on coolant (prefrozen ice packs may be used). If same day delivery is not available, priority overnight transport is recommended. For primary specimens, use triple packaging and mark as "UN3373- Biological Substances, Category B".

Shipping Requirements:

For subcultures/pure cultures, use triple packaging and mark as "UN2814- Infectious Substances Affecting Humans, Category A."

Comments:

Additional tests recommended: *Yersinia pestis* Serology.

Test Name:

***Yersinia pestis* Serology**

See CDC Serology-Bacterial/Fungal/Protozoal.
Reference Bacteriology Laboratory 617-983-6607

Test Name:

Yersiniosis

See Enteric Pathogens, Referred Culture; Enteric Pathogens, Rotuine Culture.

Test Name:	Zinc Protoporphyrin (ZnPP), Whole Blood	
Lab and Phone #:	Childhood Lead Screening Laboratory	617-983-6665
Use of Test:	Indirect measure of lead poisoning and iron deficiency.	
Method of Analysis:	Hematofluorometry	
Acceptable Range:	Children 0 to 35 μ g/dL	
Turnaround Time:	2 working days	
Sample and Volume:	100 μ L whole blood; collect with EDTA; heparin is also acceptable.	
Sampling Instructions:	Call laboratory for sampling instructions.	
Forms Required:	Childhood Lead Screening Specimen Submission Form, CLSL1 (09/03).	
Sample Container:	Microcuvette capillary collection system, amber colored, coated with EDTA.	
Sample Collection:	Call laboratory for supplies.	
Shipping Requirements:	Fingerstick or venipuncture. EDTA is the preferred anticoagulant. Keep samples refrigerated before mailing. Avoid exposing samples to extreme temperatures during shipping. Blood samples sent to the laboratory by courier or through the US mail must comply with the United States Postal Service and Department of Transportation Regulations for "Exempt Human Specimens".	
Comments:	Elevated in lead poisoning. See Centers for Disease Control guidelines for interpretation of Lead and Zinc Protoporphyrin blood levels at http://www.cdc.gov/nceh/lead/publications/pub_Reas.htm	
Test Name:	Zygomycosis Serology	
	See CDC Serology–Bacterial/Fungal/Protozoal. Reference Bacteriology Laboratory 617-983-6607	

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Tularemia	Francisella tularensis Culture and PCR	44
	Francisella tularensis Serology	44
Typhoid Fever	Enteric Pathogens, Referred Culture	41
	Enteric Pathogens, Routine Culture	42
Typhus	CDC Serology- Viral/ Other	35
Vaccinia	Vaccinia Virus, DFA and PCR	81
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	Varicella Zoster Virus, DFA and PCR	82
VDRL	Syphilis VDRL-Cerebrospinal Fluid	79

Test Category	Test Name	Page
Verotoxin Assay	Shiga-toxin (Verotoxin) Assay	76
Vibriosis	Enteric Pathogens, Referred Culture	41
	Enteric Pathogens, Routine Culture	42
Visceral Larva Migrans	CDC Serology-Bacterial/Fungal/Protozoal	35
West Nile Virus (WNV)	Arbovirus Antibody IgM and IgG, Human	18
	Arbovirus Culture and PCR, Human	19
	Arbovirus Culture and PCR, Other	19
	Arbovirus PCR, Avian	20
	Arbovirus PCR, Mosquito Vectors	20
	Arbovirus PRNT-Antibody	20
	WNV Antibody IgM and IgG EIA	83
Whooping Cough	WNV Antibody IgM and IgG, Horses	83
	Bordetella pertussis and other Bordetella spp., Culture	25
Yersinia pestis	Bordetella pertussis Serology	26
	Yersinia pestis Culture and PCR	84
Yerseniosis	CDC Serology – Bacterial/Fungal/ Protozoal	35
	Enteric Pathogens, Referred Culture	41
Zinc Protoporphyrin (ZnPP)	Enteric Pathogens, Routine Culture	42
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Zygomycosis	CDC Serology-Bacterial/Fungal/Protozoal	35

SECTION 5

SPECIMEN SUBMISSION AND SPECIMEN OUTFITS (KITS) - GENERAL INFORMATION

The State Laboratory Institute (SLI) provides Specimen Outfits to physicians, hospital laboratories, clinics and boards of health throughout the Commonwealth for transporting specimens to the SLI for analysis. These containers are the property of the MDPH/SLI and are not to be used for purposes other than shipping specimens to the SLI. The SLI does not supply blood collection tubes. The Specimen Outfit packing containers supplied by the SLI meet U.S. Postal Service (USPS) and Department of Transportation (USDOT) regulations for triple packaging of patient specimens and biological substances up to and including UN3373- Biological Substances, Category B. **Triple packaging provides the most effective containment of pathogens in preventing the risk of exposure during transport.**

IMPORTANT: For reasons of confidentiality, safety and security do not write the name of any patient or organism on the outside of any package containing laboratory specimens. This includes any package containing Exempt Human or Animal specimens, Biological Substances in Category B, or Infectious Substances in Category A.

A summary of changes to the International Air Transport Association (IATA), USDOT and USPS regulations that go into effect January 1, 2007 for transporting laboratory specimens are included in Section 6 - Packaging and Shipping Specimens. It is the shipper's responsibility to package the specimen properly to meet the shipping regulations. Depending on the type of specimen and patient history, specimens that are sent to the SLI may fall in several categories (proper shipping names) including:

Exempt Human or Animal Specimen,

UN3373 Biological Substances- Category B,

UN2814 Infectious Substances Affecting Humans and Animals- Category A, and

UN2900 Infectious Substances Affecting Animals- Category A.

The following guidelines may help to avoid problems associated with sample collection and submission:

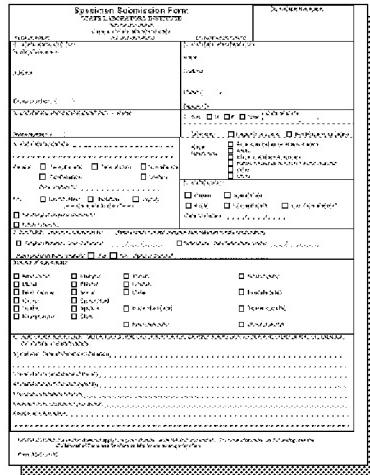
- Note the sample type and volume, the correct specimen submission form required, the sample container, the specimen kit and the shipping requirements in each test listing for the safe and expeditious transport of samples to the SLI.
- It is the responsibility of the shipper to submit good quality samples for testing.
- Use only a specific specimen outfit (kit) for its intended purpose. Example: use TB Culture Outfit for TB sample only.
- All samples submitted for analysis should be properly labeled for identification. The name on the primary, leakproof, sterile container (the sample collection tube or vial) and the name on the laboratory submission form must be the same.
- Use only the most current laboratory specimen submission forms when submitting samples. Discard all old forms.
- A completed specimen submission form containing necessary and pertinent information must accompany each specimen submitted.
- Each form must contain completed contact information.
- Place the submission form between the secondary and outer container. Do not attach the sample to the form or wrap the submission form around the primary sample container.
- Specimens should be collected at the appropriate times noted in the test listing. This is important for serological testing.
- Follow instructions for temperature control. Maintain cool temperatures where noted by using pre-frozen cold packs. Do not expose samples to extreme temperatures as this may impact the sample integrity, which may affect the test results. Avoid using wet ice when shipping because the outer container may become compromised by water and appear to be leaking which could prevent acceptance or delay transport by a courier or USPS.
- Do not hold onto specimens for long periods. Transport or ship the samples to the laboratory as soon as possible. Avoid mailing specimens on weekends or holidays. Where applicable, keep samples refrigerated until shipping.
- Use recommended packing materials according to appropriate packing regulations when shipping. Do not transport any specimens in materials that do not qualify as secondary or outer packings (such as paper cups or paper bags).

SPECIMEN OUTFITS FOR SLI CLIENTS

Below is a listing of specimen outfits and supplies available for the purpose of sending (USPS or courier) samples to the SLI. Call or fax orders to the contact for each item. When ordering, specify whether the outfits will be a "pick-up" by the requestor, or "ship to" (by USPS) the requestor.

Specimen Outfits and Materials	Kits in carton	Contact	Phone 617-	Fax 617-	Fee per kit
Chlamydia	12	Division of Microbiology	983-6640	983-6618	None
Enteric	6	Division of Microbiology	983-6640	983-6618	None
HCV Multiple Courier	12	HIV/Hepatitis Lab	983-6392	983-6363	None
HCV Multiple Mailing	9	HIV/Hepatitis Lab	983-6392	983-6363	None
HCV Single Mailing	24	HIV/Hepatitis Lab	983-6392	983-6363	None
HIV Multiple Courier	12	HIV/Hepatitis Lab	983-6392	983-6908	None
HIV Multiple Mailing	9	HIV/Hepatitis Lab	983-6392	983-6908	None
HIV Single Courier	24	HIV/Hepatitis Lab	983-6392	983-6908	None
HIV Single Mailing	24	HIV/Hepatitis Lab	983-6392	983-6908	None
Legionella Transport	4	Division of Microbiology	983-6640	983-6618	None
Parasitology	each	Division of Microbiology	983-6640	983-6618	None
Pertussis Culture	each	Division of Microbiology	983-6640	983-6618	None
Pertussis Serology	6	Division of Microbiology	983-6640	983-6618	None
Respiratory Virus (flu,paraflu,adeno,rsv)	each	BCDC, Division of Epidemiology & Immunization	983-6800	983-6840	None
STD	9	Division of Microbiology	983-6640	983-6618	None
Subculture- Biological Substances, Category B	6	Division of Microbiology	983-6640	983-6618	None
Syphilis Serology Multiple Courier	12	Division of Microbiology	983-6640	983-6618	None
Syphilis Serology Multiple Mailing	9	Division of Microbiology	983-6640	983-6618	None
Syphilis Serology Single Courier	24	Division of Microbiology	983-6640	983-6618	None
Syphilis Serology Single Mailing	24	Division of Microbiology	983-6640	983-6618	None
TB Culture Courier	25	Mycobacteriology Lab	983-6358	983-6399	None
TB Culture Mailing	16	Mycobacteriology Lab	983-6358	983-6399	None
West Nile Virus, Avian (for BOH Agents and WNV Repositories)	5	Arbovirus Surveillance Lab	983-6792	983-6363	None
Blood Lead Screening Supplies:					
Lead, Microcuvette Capillary Collection Tubes	each	Childhood Lead Screening	983-6665	983-6677	None
Lead, Blood Requisition Form	each	Childhood Lead Screening	983-6665	983-6677	None
Specimen Shipping containers	each	Childhood Lead Screening	983-6665	983-6677	None
Environmental Test Kits:					
Lead, Dust Wipes	5	Environmental Chemistry Lab	983-6654	983-6662	None
Lead, Water	3	Environmental Chemistry Lab	983-6654	983-6662	\$80.00
Lead, Sodium Sulfide (Provided to State Licensed Lead Inspectors and Code Enforcement Agents Only).	each	Environmental Chemistry Lab	983-6654	983-6662	None
Forms Available:					
Animal Specimen Submission Form, SS-SLI-2-07	each	Virus Serology Lab	983-6396	983-6363	None
Hepatitis/ HIV Barcodes	each	HIV/Hepatitis Lab	983-6392	983-6363	None
Hepatitis/ HIV Specimen Submission Forms	each	HIV/Hepatitis Lab	983-6392	983-6363	None
Premarital Forms	each	BCDC, Division of STD	983-6940	983-6962	None
Rabies Specimen for Testing, SS-RA-1-06	each	Rabies Lab	983-6385	983-6363	None
SLI Specimen Submission, SS-SLI-01-08	each	Division of Microbiology	983-6640	983-6618	None
Syphilis Serology Forms (Select Clinics Only)	each	STD Lab	983-6640	983-6618	None
Lead, Order Form for Environmental Kits	each	Environmental Chemistry Lab	983-6654	983-6662	None
Lead, Paint Worksheet	each	Environmental Chemistry Lab	983-6654	983-6662	None
Lead, Soil Worksheet	each	Environmental Chemistry Lab	983-6654	983-6662	None

SLI SPECIMEN SUBMISSION FORMS



General Specimen Submission Form, SS-SLI-1-08	page 95
Animal Specimen Submission Form, SS-SLI-2-07	page 97
Childhood Lead Screening Specimen Submission Form, CLSL1 (09/03)	page 98
Food/Water Bacteriology Submission Form, SS-FD-1-06	page 100
Specimen Request Form for Rabies Testing, SS-RA-1-06	page 101
West Nile Virus Dead Bird Reporting and Test Request Form, SS-VI-2-07	page 102

SPECIMEN SUBMISSION FORM
STATE LABORATORY INSTITUTE
305 SOUTH STREET, JAMAICA PLAIN, MA 02130-3597
Phone 617-983-6200

PRINT, APPLY LABEL OR STAMP: DO NOT ABBREVIATE

ONLY ONE TEST PER SUBMISSION FORM

Send Results To: Facility / Laboratory Name (<i>required</i>)	Patient Information: Last Name, First Name, MI	
Address	Address	
Phone #	Patient ID Phone # Sex: <input type="checkbox"/> M <input type="checkbox"/> F <input type="checkbox"/> Other Date of Birth: Race: (Check One) <input type="checkbox"/> American Indian or Alaska Native <input type="checkbox"/> Asian <input type="checkbox"/> Black or African American <input type="checkbox"/> White <input type="checkbox"/> Native Hawaiian or Pacific Islander <input type="checkbox"/> Other Ethnicity: Hispanic or Latino Non-Hispanic or Latino	
Ordering Provider and Phone #		

Test Requested: _____
(required) One Per Form

Collection Date: _____
(required) One Per Form

Serology			
Acute	Contact	Test of Cure	
Confirmation	Surveillance		
Convalescent	Symptomatic		

Culture			
Date of Culture:			
Date of Subculture:			
Sample Treated	Y	N	If yes, how:

Source of Specimen: (required) One Per Form

Anal canal	Nasopharynx	Stool	Body Fluid (site)
Blood	Plasma	Throat (pharynx)	Bronchus (site)
Bone Marrow	Serum	Urethra	Exudates (site)
Cervix	Spinal Fluid	Urine	Wound (site)
Gastric	Sputum		Tissue (site)
Other: (Specify)			

Additional Patient Information:

Symptoms, Date of Onset, and Duration
Travel History (Dates and Locations)
Animal / Insect contact: (specify)
Relevant Immunizations (Dates)
Previous Laboratory Results
Additional Information

For information on testing, see **Manual of Laboratory Tests and Services**: <http://www.mass.gov>
 SS-SLI-1-08

Search: manual lab

**Do Not Use
This Space**

SPECIMEN SUBMISSION FORM
STATE LABORATORY INSTITUTE
305 SOUTH STREET, JAMAICA PLAIN, MA 02130-3597
Phone 617-983-6200

Please fill out "Additional Patient Information" section on front of form for the following tests:

Adenovirus	Herpes	Rickettsia
Arbovirus testing	Influenza	Respiratory Syncytial virus (RSV)
Babesia	Lymphocytic choriomeningitis virus (LCM)	Rubella
Campylobacter	Legionella	Salmonella
Chikungunya	Lyme Disease	Shigella
Cytomegalovirus (CMV)	Measles	St. Louis Encephalitis
Dengue Fever	Mumps	Syphilis
E. coli	<i>Mycoplasma pneumoniae</i>	Vaccinia virus
Eastern Equine Encephalitis	Parainfluenza	Varicella zoster
Enterovirus	Parasitology serology	Vibrio
Ehrlichia	Pertussis	West Nile Virus
Hantavirus	Q Fever	Yellow Fever

For information on testing, see **Manual of Laboratory Tests and Services**: <http://www.mass.gov> Search: manual lab
SS-SLI-1-08

Animal Specimen Submission Form
STATE LABORATORY INSTITUTE
305 South Street
Jamaica Plain, MA 02130-3597
Tel: 617-823-2200

Do not use this space

PLEASE PRINT

DO NOT ABBREVIATE

INSTRUCTIONS: If a section does not apply to a given situation, write N/A (not applicable). For more information on SLI testing, see the SLI Manual of Tests and Services at <http://www.mass.gov/dph/bls/bls>

Form SS-SLI-2-07

CHILDHOOD LEAD POISONING PREVENTION LABORATORY MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH 305 SOUTH STREET, BOSTON, MA 02130-3597 TEL. 617-983-6665				DATE SAMPLE TAKEN				
CHILD'S LAST NAME		FIRST NAME		INITIAL	DATE OF BIRTH (MM/DD/YY)		SEX	
STREET ADDRESS		APT. #	CITY OR TOWN			STATE	ZIP CODE	
LAST NAME OF PARENT OR GUARDIAN		FIRST NAME			TELEPHONE ()			
I AUTHORIZE PAYMENT OF MEDICAL BENEFITS TO LABORATORY. SIGNATURE:								
<input type="checkbox"/> BOSTON HEALTH NET:		<input type="checkbox"/> NETWORK HEALTH:	INSURANCE MAILING ADDRESS:					
<input type="checkbox"/> BLUE CROSS:		<input type="checkbox"/> TUFTS:						
<input type="checkbox"/> NEIGHBORHOOD HEALTH PLAN: HMO: _____		<input type="checkbox"/> OTHER	INSURANCE CERTIFICATE NUMBER:					
<input type="checkbox"/> HARVARD PILGRIM HEALTH PLAN:		INSURANCE GROUP NUMBER:						
<input type="checkbox"/> OTHER INSURANCE: _____								
SUBSCRIBER NAME:				RELATIONSHIP TO SUBSCRIBER:				
SUBSCRIBER ADDRESS IF DIFFERENT FROM CHILD:		APT#	CITY OR TOWN			STATE	ZIP CODE	
MASS HEALTH (MEDICAID) REQUIRED INFORMATION		CARDHOLDER NUMBER			RECIPIENT IDENTIFICATION			SEQ. #
AGENCY NAME		PHYSICIAN NAME						
PATIENT I.D. NUMBER		PROVIDER NUMBER						
COMMENTS		SEE BACK OF FORM FOR CODES RACE CODE <input type="checkbox"/> ANCESTRY CODE <input type="checkbox"/>						

RACE CODES (ENTER ON FRONT OF FORM)	ANCESTRY CODES (ENTER ON FRONT OF FORM)
1. BLACK	1. PUERTO RICAN
2. HISPANIC	2. DOMINICAN
3. WHITE	3. CENTRAL AMERICAN
4. ASIAN - PACIFIC ISLANDER	4. OTHER HISPANIC - MEXICAN, CUBAN, SOUTH AMERICAN
5. AMERICAN INDIAN - ALASKAN NATIVE	5. BRAZILIAN
6. OTHER	6. CAPE VERDEAN
7. UNKNOWN	7. OTHER PORTUGUESE
	8.. CHINESE
	9. WEST INDIAN
	10. CAMBODIAN
	11. VIETNAMESE
	12. LAOTIAN
	13. OTHER ASIAN - PACIFIC ISLANDER, INDIAN
	14. PAKISTANI - ASIAN
	15. EUROPEAN
	16. AFRICAN
	17. NORTH AMERICAN
	18. OTHER
	19. UNKNOWN

PLEASE READ THIS CAREFULLY

Massachusetts has a mandatory universal screening requirement for lead poisoning. All children shall be screened for lead poisoning once between the ages of nine and 12 months, and again at ages two and three years. In addition, children who live in one of the cities and towns at high risk for childhood lead poisoning, as determined by the State Program and distributed to clinicians and the public, shall be screened until age four. Other four year olds may be screened at the discretion of their healthcare provider.

Screening of Children at High Risk for Lead Poisoning

Children shall be screened for lead poisoning more than once a year when they meet one of the high-risk criteria below, or whenever in the sound judgment of the health care provider they are at high risk of lead poisoning:

- Living in a pre-1978 home with deteriorated paint or plaster, unless it has been inspected by a lead inspector and found not to contain lead-based paint: At least every six months between the ages of six months and three years, and again at ages four and five.
- Having siblings or playmates who are lead poisoned: At least every six months between the ages of six months and three years, and again at ages four and five.
- Living in a pre-1978 home undergoing renovation, unless it has been inspected by a lead inspector and found not to contain lead-based paint or plaster: Within four weeks of the start of the renovation project, once a month thereafter its duration, and once after its completion.

I have read and/ or have had explained the information on this form about lead poisoning.

SIGNATURE:

DATE:

FORM CLSL1 (09/03)

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH, STATE LABORATORY INSTITUTE
FOOD/WATER MICROBIOLOGY LABORATORY Room 415

SAMPLE SUBMISSION FORM

Signature of Inspector delivering sample to Laboratory:	Laboratory Number(s):
Sample Number(s) of Inspector who collected sample:	Date Collected:
Source of sample(s); Name of Establishment and Address	Date Received in Laboratory, _____ Time _____ Initials _____ Condition received in Lab.: On Ice _____ Frozen _____ Room Temp. _____ Other: _____
Complainant: Submitter Name/Title: Address: Phone: _____ Fax: _____	Date results submitted to supervisor:

SPECIFIC
INSTRUCTIONS: _____ DATE: _____

Reason for sample submission: Inspection: _____ Salvage: _____ Embargo: _____ (Tag #) Date purchased: _____
Complaint: _____ General Complaint #: _____ or Foodborne Illness: _____ WOFOIC Case #: _____

PRODUCT INFORMATION

LAB RESULTS

Lab. Number	Inspector Number	Sample Description	S*	Type of Container Sealed or Opened	Code/ Date	Net Wt. Gross Wt. or Volume						

S* Indicates source of sample: Consumer (C); Retail (R); Manufacturer (M); Distributor (D); Follow-up (F); Other (O). *10 = not found at 10⁰; *100 = not found at 10²; *1000 = not found at 10³. * = Violation NF = Not Found NA = Not Applicable ** Results suggest that further investigation of ingredients or food-handling procedures is recommended.

Date Analysis Completed: _____ Date Reported: _____ Analyst(s): _____ Reviewed By: _____ Leftover Sample in Lab: Yes: _____ No: _____
REMARKS:
SLI-SS-FD-1-06

Page ____ of ____ pages

Specimen Request Form for Rabies Testing

STATE LABORATORY INSTITUTE

305 South Street

Jamaica Plain, MA 02130-3597

Tel. 617-983-6385

PLEASE PRINT

[Lab use only]

Date Received ____/____/____

DO NOT ABBREVIATE

1. PROVIDER/SENDER INFORMATION

Name _____

Address: No./Street/Apt.# _____

City/Town _____

State _____

Zip Code _____

Phone Number: (____) _____

2. OWNER INFORMATION (or person who found animal)

Name: Last _____ First _____ Initial _____

Address: No./Street/Apt # _____

City/Town _____

State _____

Zip Code _____

Phone Number: (____) _____

3. SPECIMEN INFORMATION

 Pet Stray Wild Unknown

Species _____

Breed _____

Age _____

Death Date _____ / _____ / _____

Cause of Death: Natural
 Euthanized

Method _____

Location Where Animal was located:

Street _____

Town _____

Symptoms:

- Aggression
 Ataxia
 Disorientation

 Found Dead Lethargy Paralysis Salivation Seizures Unexplained Wound Other _____

Reason for Rabies Testing:

- Human Exposure
 Pet Exposure
 Acting Sick

Travel Out of State:

 Yes

(Location _____ Date ____/____/____)

 No Unknown

Bitten by Another Animal in Past 12 Months:

 Yes (type of animal _____) No Unknown

Vaccination History: date

 Rabies Vaccinated (____/____/____) Not Rabies Vaccinated (not current) Unknown

4. EXPOSURE INFORMATION

Person(s) Exposed

Exposure Date ____/____/____

Animal(s) Exposed

Exposure Date ____/____/____

Name _____

Physician Name _____

Name _____

Address: No./Street/Apt.# _____

Species _____ Age _____

City/Town _____

State _____

Zip Code _____

Address: No./Street/Apt.# (if different from owner) _____

Phone Number: (____)

Physician Phone Number: (____)

City/Town _____

State _____

Zip Code _____

Type of Exposure:
(check one)

- Bite
 Scratch
 Lick
 Other _____
 Unknown

Body Site _____

 Bite Scratch Lick Other _____ Unknown

Body Site _____

Severity _____

Severity _____

Circumstance of Exposure:
(check one)

- Capture
 Unprovoked Attack
 Provoked Attack
 Handling

 Specimen Preparation Other _____ Fight Vicinity Dead Animal Contact Other _____

Pre-Exposure Vaccination History:

- Rabies Vaccinated (current)
 Not Rabies Vaccinated (not current)
 Unknown

Post-Exposure Rabies Vaccination:

- Received
 Not Received
 Unknown

Pre-Exposure Vaccination History:

- Rabies Vaccinated (current)
 Not Rabies Vaccinated (not current)
 Unknown

Post-Exposure Rabies Vaccination:

- Received
 Not Received
 Unknown

5. FLUORESCENT RABIES ANTIBODY TEST RESULTS

Reported By: _____

Date: ____/____/____

[Lab use only]

 Positive (rabid) Negative (not rabid) Specimen Unsatisfactory

Comments: _____

Results Read Back By: _____

/Voice Message

Notified By: _____

Date: ____/____/____

[Lab use only]

FORM SS-Ra-1-06 (Revised 03/31/06)

West Nile Virus Dead Bird Reporting and Test Request Form

**Massachusetts Department of Public Health
State Laboratory Institute
Arbovirus Laboratory
305 South Street, Jamaica Plain, MA 02130
(617) 983-4393**

Tracking ID# _____

Assigned by MDPH Staff if bird is to be submitted for testing

Reporting of Dead Bird – Call (866) MASS-WNV / (866) 627-7968

The information below is required for surveillance purposes and to assess bird collection and testing needs. If the bird is considered satisfactory for testing, **please write the Tracking ID # assigned by the Information Line staff in the upper right hand corner of this form** and fill this form out completely. A bird that is not satisfactory for testing should not be submitted to the laboratory.

Has this bird already been reported to the Information Line?

(If "yes", write the assigned tracking number in the box at the top right of this page)

Yes / No

(circle one)

BIRD INFORMATION:

Condition of Bird:

Date of Report: _____

- Are the eyes sunken in? Yes / No
- Is the head intact? Yes / No
- Are there flies/maggots on the bird? Yes / No
- Is the bird mutilated in any way? Yes / No

List Species of Bird: _____ Date Bird Found: _____

Street Address where Bird was found: _____

City/Town: _____ Zip Code: _____

Name and phone number of resident reporting bird:

Name: _____ Phone: _____

Is this bird being submitted for testing? Yes / No If yes, Repository Name: _____

Comments: _____

AGENCY CONTACT INFORMATION (if applicable):

Name: _____ Organization: _____

City/Town: _____ Zip Code: _____ Phone: _____

Transport of Bird

If the Department of Public Health determines that the bird is to be submitted for WNV testing, a tracking ID will be given over the phone and must be written on the bags containing the bird as well as on the top right of this form. In the event a bird tests positive for WNV, the arbovirus coordinator of the town will be notified.

All specimens must be properly packaged according to "Instructions for Packaging and Transporting Birds to the State Laboratory Institute". This document can be found on the MDPH website at www.mass.gov/dph/wnv/wnv1.htm under 'Information for Local Boards of Health'.

Disposal of Dead Birds Not Sent for Testing

Do not touch a bird with bare hands. Use double plastic bags to dispose of any bird not being submitted for testing. Once sealed in the double plastic bags, a dead bird can be placed in the trash. Wash hands with soap and water after disposal.

LAB USE ONLY

Laboratory ID _____

Date Received _____

Satisfactory? YES / NO Comments _____

SS-VI-2-07

Division 6.2 Infectious Substance Shipping Guide: Classification, Packing, Marking and Labeling



**Massachusetts Department of Public Health
State Laboratory Institute**

Introduction

This summary is intended to provide general information and guidance regarding packaging and shipping of Division 6.2 Infectious Substance Materials. It is not a comprehensive list of all regulations. Consult the u. s. Department of Transportation, International Air Transport Association and United States Postal Service regulations for current policies and procedures.

The companies your facility uses for shipping or courier services may have additional documentation requirements for airway bills or shipper's declarations that are not covered in this guide. Contact your shipping partners directly for specific requirements.

Regulatory Agencies

→ Department of Transportation (DOT)

In the United States, the Department of Transportation is the regulatory authority for hazardous materials sent by all modes of transport, except the U.S. Mail. DOT is the U.S. authority for assuring compliance with the transportation regulations.

- Website: <http://hazmat.dot.gov>

Contains links to the regulations, free publications, and DOT training schedules. The Office of Hazardous Materials Safety website formulates, issues, and revises Hazardous Materials Regulations (HMR) under the Federal Hazardous Materials Transportation Law.

Hazardous Materials INFO LINE: 1-800-HMR49-22 (1-800-467-4922)
1-202-366-4488 (Washington, D.C.)

→ International Air Transport Association (IATA) / International Civil Aviation Organization (ICAO)

ICAO governs the international transport of dangerous goods or hazardous materials by air. The professional airline regulatory document, IATA *Dangerous Goods Regulations* takes the ICAO regulations and adds additional industry requirements. A shipper who follows IATA regulations is also in compliance with ICAO.

- Main Website: <http://www.iata.org>
- Website: http://www.iata.org/whatwedo/cargo/dangerous_goods/index.htm

Contains Packing Instruction 650, up-to-date checklists for dry-ice and non-radioactive shipments, and addenda to the most current edition of the *Dangerous Goods Regulations*.

Dangerous Goods Information HOTLINE: Phone: 1-514-390-6770
Email: dangood@iata.org

→ United States Postal Service (USPS or U.S. Mail)

The USPS is an independent federal agency that provides mail service in the United States. Regulations affecting the transport of hazardous materials in the US mail, including Division 6.2 materials, are codified in the Code of Federal Register, 38 CFR and published in the Domestic Mail Manual.

- Website: http://pe.usps.gov/text/dmm300/601.htm#1_0

This contains the 601 Mailability section of the Domestic Mail Manual. See section 10.17 for regulations regarding Infectious Substances (Hazard Class 6, Division 6.2). See section 10.20 for regulations regarding Dry Ice.

Classification of Division 6.2 Infectious Substances

Source: DOT, IATA, USPS

Hazardous Materials

Class 1	Explosives
Class 2	Gases
Class 3	Flammable Liquids
Class 4	Flammable Solids
Class 5	Oxidizers/Organic Peroxides
Class 6	Toxic and Infectious Substances Division 6.1 – Poisonous Material Division 6.2 – Infectious Substance
Class 7	Radioactive Material
Class 8	Corrosives
Class 9	Miscellaneous Hazardous Material

Division 6.2 Infectious Substance: A material known or reasonably expected to contain a pathogen, such as bacteria, viruses, rickettsiae, parasites, fungi or prions, that can cause disease in humans or animals.

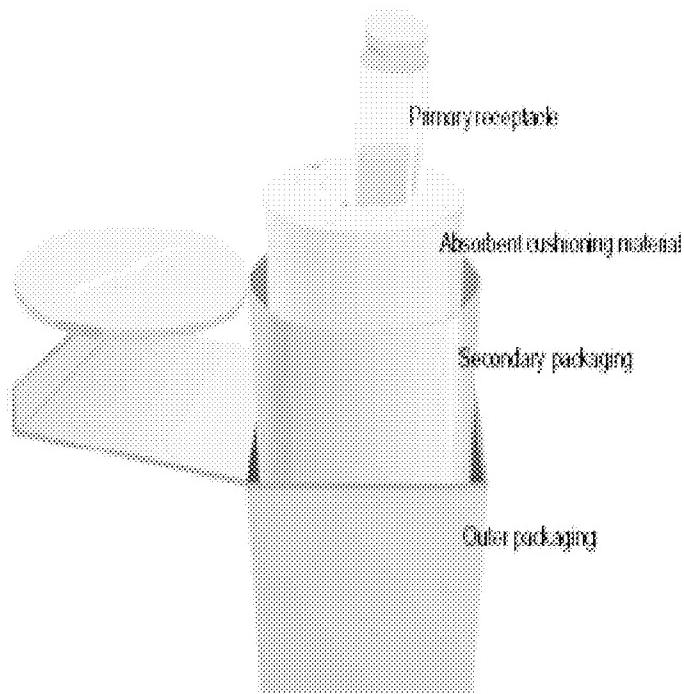
Category A	An infectious substance transported in a form capable of causing permanent disability or life-threatening or fatal disease in otherwise healthy humans or animals when exposure occurs.
Category B	An infectious substance not in a form capable of causing permanent disability or life-threatening or fatal disease in otherwise healthy humans or animals when exposure occurs.
Exempt Human Specimen or Exempt Animal Specimen DOT does not have this category in their regulations! According to DOT exempt human or animal specimens are not subject to requirements as Division 6.2 material. Please refer directly to IATA and USPS regulations, as well as your own facility guidelines to determine what is acceptable to be sent in this category.	

Culture: An infectious substance containing a pathogen that is intentionally propagated. A culture does not include a human or animal patient specimen as defined below, regardless of how it is transported (with OR without transport media).

Note: The definition of cultures refers to any infectious substance containing a pathogen that has been intentionally amplified or propagated. This includes laboratory stock culture AND presumptive positive cultures intended for diagnostic and clinical purposes.

Patient Specimen: Human or animal materials collected directly from human or animals and transported for research, diagnosis, investigational activities, or disease treatment or prevention. Patient specimens include excreta, secreta, blood and its components, tissues and tissue swabs, body parts, and specimens in transport media (transwabs, culture media, blood culture bottles).

Required Packing



The U.S. Department of Transportation (USDOT), International Air Transport Association (IATA), and the U.S. Postal Service (USPS) require regulated division 6.2 material to be transported in triple packaging. The primary and secondary packaging for Category A and Category B infectious substances must be enclosed in a rigid outer shipping container.

Primary receptacle(s) and/or secondary packaging(s):

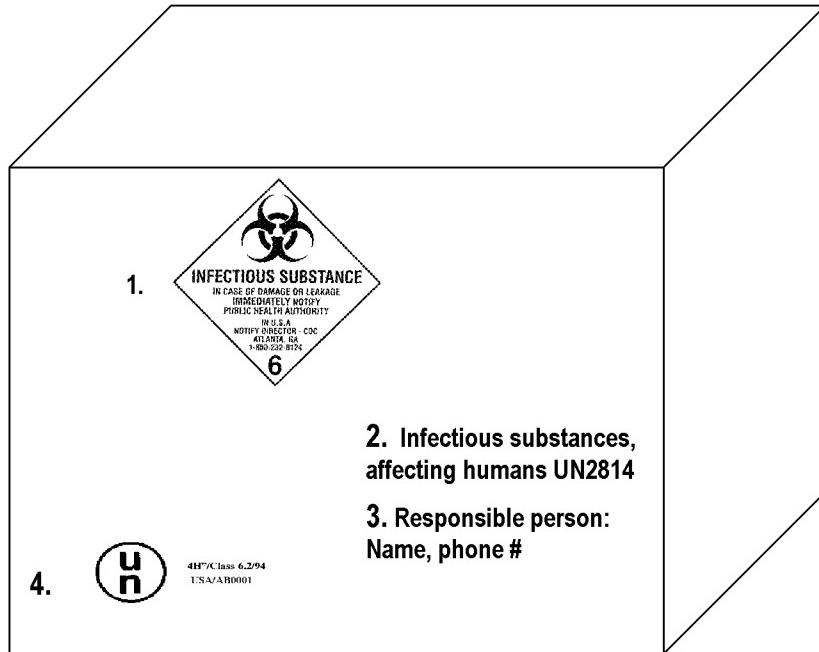
1. Must be leak proof and sift proof.
2. For liquids: Include enough absorbent material to absorb the total amount of liquid should the primary receptacle leak or break.
3. For fragile or multiple receptacles: Cushion to prevent damage in transport.
4. For air transport, which includes the U.S. Mail, the primary receptacle or secondary packaging must be capable of withstanding, without leakage, an internal pressure producing a pressure differential of not less than 95 kPa.
5. Place an international biohazard symbol on any inner packaging that contains blood or is contaminated with human blood. Additionally, affix the label to all secondary containers of packages being transported by U.S. Mail.

International Biohazard Symbol:

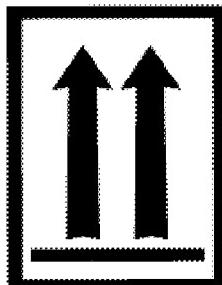


Required Markings for Category A Substances

1. Division 6.2 Infectious substance hazard label
2. Proper shipping name and UNID number
 - "Infectious Substance, Affecting Humans UN2814" OR
 - "Infectious Substance, Affecting Animals UN2900"
3. Responsible person: name and phone number (see page 6 for additional details)
4. UN packaging specification number
5. Air transport (see page 110 for additional information)

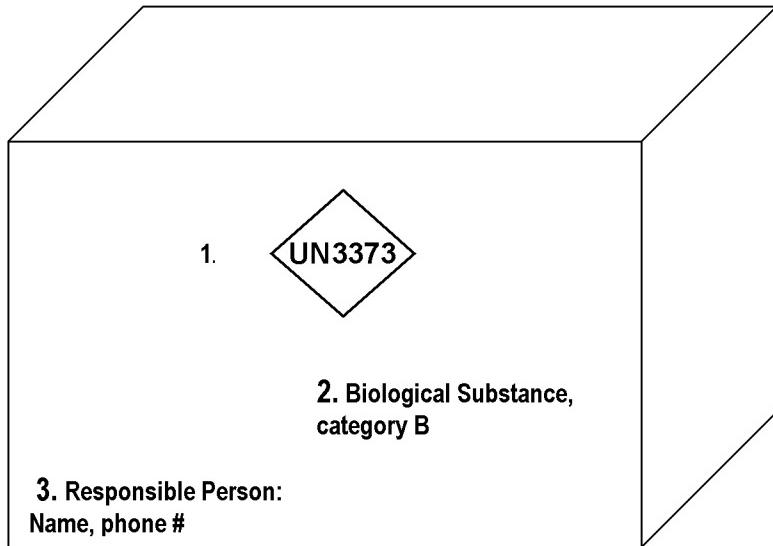


Orientation arrows are required for packages containing Category A infectious substances (UN2814 and UN2900) with more than 50 mL (1.7 fl.oz.). Place arrows on TWO opposite sides of the box. The rectangular border around the arrows is optional.



Required Markings for Category B Substances

1. UN3373 marking
2. Proper shipping name: "Biological Substance, Category B"
3. Responsible person: Name and phone number (see below for additional details)



Responsible Person Contact Information

NOTE: The phone number listed on the package must be answered during administrative business hours while the package is in transport. The contact information is only required for air transport, not land transport.

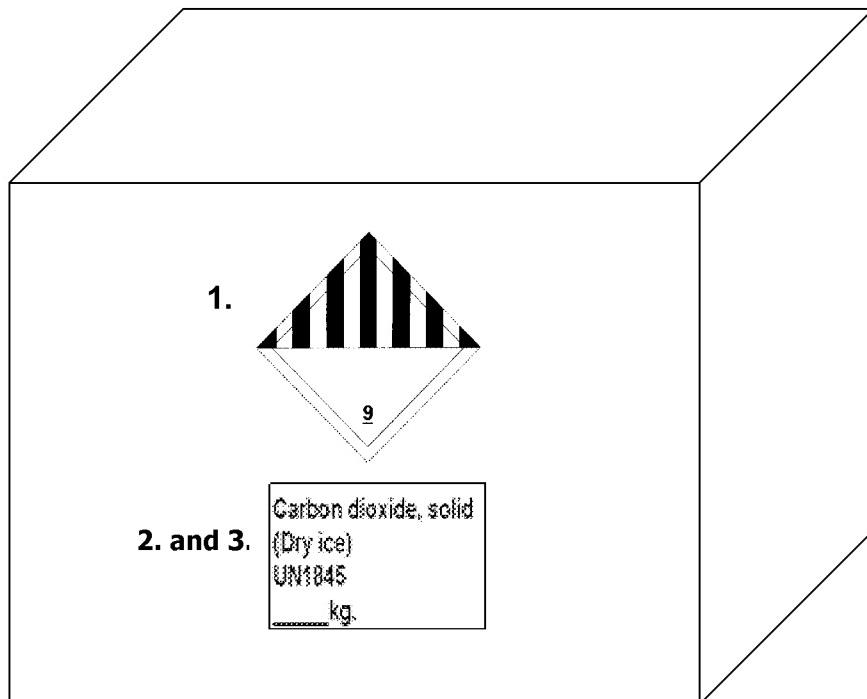
The responsible person must be knowledgeable of the package contents and able to provide comprehensive emergency response information and incident mitigation information for the material.

Required Markings for Dry Ice

Markings and hazard labels for dry ice are required when sent by air or water. In addition, these markings and labels may be required on packages transported by commercial carriers and couriers by land.

The labels and markings required for dry ice are used *in addition* to any other labels and markings required for other hazardous materials in the package.

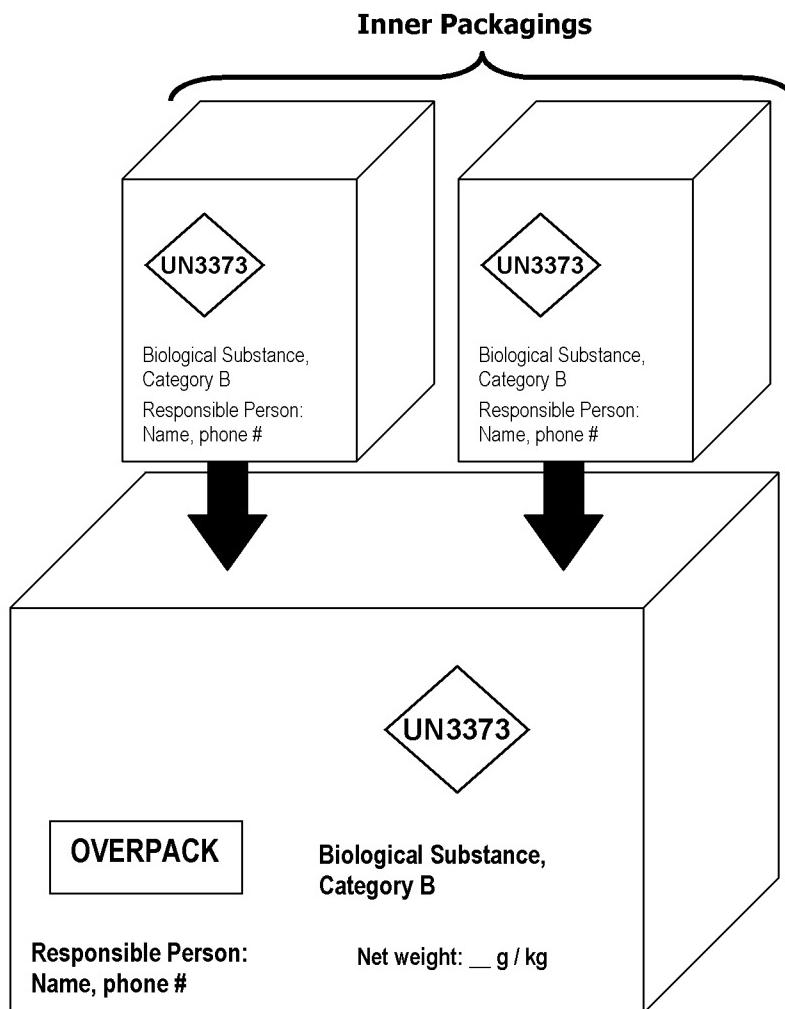
1. Class 9 Miscellaneous hazard label
2. Proper shipping name and UNID Number:
"Carbon dioxide, solid" or "Dry ice" and UN1845
3. Net quantity of dry ice



Required Overpack Markings

Overpack markings are required when the overpack obscures the markings and labels of inner packages.

1. Use the "Overpack" marking in addition to duplicating all markings and inner labels that are not visible through the overpack. UN package specification marking is not required to be duplicated.



Cargo Only Handling Label

Use the "Cargo Only" handling label for air transport and on packages that exceed the quantity limits for transport by passenger aircraft. This label would only be used for Category A shipments.

1. Affix in addition to other required markings or hazard labels.
2. Affix to the same surface of package and near the required hazard labels.
3. This label should never be used on packages transported by U.S. Mail.



MDPH State Laboratory Institute Contact Information

If you have any questions regarding general packaging and shipping questions, contact the Massachusetts Department of Public Health State Laboratory Institute Packaging and Shipping liaison.

Ciranna Bird, MPH
Office of Laboratory Emergency Preparedness
State Laboratory Institute
305 South Street, Jamaica Plain, MA 02130
Telephone: 617-983-6216
Email: ciranna.bird@state.ma.us

The State Laboratory Institute also offers "Packaging and Shipping: Division 6.2 Hazardous Materials" train-the-trainer courses on a regional basis several times per year. Call (617) 983-6216 for more details.



Website: www.mass.gov/dph/bls/bls.htm